

Gateway EC54/EC58

SERVICEGUIDE



Revision History

Please refer to the table below for the updates made on the Gateway EC58 service guide.

Date	Chapter	Updates

Copyright

Copyright © 2009 by Gateway Incorporated. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of Gateway Incorporated.

PRINTED IN TAIWAN

CHAPTER 1

System Specifications

- Preface
- Features
- System Block Diagram
- Board Layout
- Notebook Product Tour
- Hardware Specifications and Configurations

Preface

Conventions

The following conventions are used in this manual:



Warning

Alerts you to any damage that might result from doing or not doing specific actions.



Caution

Gives precautionary measures to avoid possible hardware or software problems.



Important

Reminds you to do specific actions relevant to the accomplishment of procedures.



Note

Gives bits and pieces of additional information related to the current topic.

General Information

Before using this information and the product it supports, please read the following general information.

- 1 This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Gateway's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
- 2 Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in this printed Service Guide. For GATEWAY-AUTHORIZED SERVICE PROVIDERS, your Gateway office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Gateway office to order FRU parts for repair and service of customer machines.

Features

Below is a brief summary of the computer's many features:

EC58 Specifications

Operating System¹

- Genuine Windows[®] 7 Home Premium 64-bit²

Platform¹

- Intel[®] Centrino[®] 2 processor technology, featuring:
 - Intel[®] Core[™] 2 Duo processor **SU7300/SU9400** (3MB L2 cache, 1.20/1.40 GHz, 800 MHz FSB, 10 W), supporting Intel[®] 64 architecture
- Mobile Intel[®] GS45 Express Chipset
- Intel[®] Wireless WiFi Link 5100 802.11a/b/g/Draft-N Wi-Fi CERTIFIED[™] network connection, featuring MIMO technology³

System Memory^{1, 4, 5}

- Dual-Channel DDR3 SDRAM support
 - Up to 4 GB of DDR3 1066 MHz memory, upgradeable to 8 GB using two SO-DIMM modules

Display

- 15.6" HD 1366 x 768 pixel resolution, high-brightness (200-nit) Gateway Ultrabright[™] LED-backlit TFT LCD
- 16:9 aspect ratio

Graphics¹

- ATI Mobility Radeon™ HD 4330⁶ with up to 2304⁷ MB of HyperMemory™ (512 MB of dedicated DDR3 VRAM, up to 1792 MB of shared system memory), supporting Unified Video Decoder (UVD), OpenEXR High Dynamic-Range (HDR) technology, Shader Model 4.1, Microsoft® DirectX® 10.1
- Mobile Intel® GS45 Express Chipset with integrated 3D graphics⁸, featuring Intel® Graphics Media Accelerator 4500MHD (Intel® GMA 4500 MHD) with up to 1659 MB of Intel® Dynamic Video Memory Technology 5.0 (64 MB of dedicated video memory, up to 1631 MB of shared system memory), supporting Microsoft® DirectX® 10
- Dual independent display support 16.7 million colors
- External resolution/refresh rate:
 - 2048 x 1536: 75/60 Hz
 - 1920 x 1440: 85/75/60 Hz
 - 1920 x 1200: 75/60 Hz
 - 1920 x 1080: 100/85/75/60 Hz
 - 1680 x 945: 100/85/75/60 Hz
 - 1600 x 1200: 120/100/85/75/60 Hz
 - 1600 x 900: 120/100/85/75/60 Hz
 - 1400 x 1050: 85/75/60 Hz
 - 1366 x 768: 85/75/60 Hz
 - 1280 x 1024: 120/100/85/75/60 Hz
 - 1280 x 1024: 120/100/85/75/60 Hz
 - 1280 x 768: 85/75/60 Hz
 - 1280 x 720: 100/85/75/60 Hz
 - 1024 x 768: 120/100/85/75/60 Hz
 - 800 x 600: 120/100/85/72/60 Hz
 - 640 x 480: 120/100/85/75/60 Hz
- MPEG-2/DVD decoding
- WMV9 (VC-1) and H.264 (AVC) decoding
- HDMI™ (High-Definition Multimedia Interface) with HDCP (High-bandwidth Digital Content Protection) support

Audio

- Optimized 2nd Generation Dolby Sound Room^{®9} audio enhancement, featuring Dolby® Headphone, Dolby® Natural Bass and Dolby® Sound Space Expander
- Two built-in stereo speakers
- High-definition audio support
- S/PDIF (Sony/Philips Digital Interface)¹⁰ support for digital speakers
- Built-in microphone
- MS-Sound compatible

Storage

- 160/250/320/500 GB or larger hard disk drive^{1.11}
- Multi-in-1 card reader, supporting Secure Digital™ (SD) Card, MultiMediaCard (MMC), Memory Stick™ (MS), Memory Stick PRO™ (MS PRO), xD-Picture Card™ (xD)

Communication

- Video Conference¹, featuring:
 - Integrated high-def video webcam, featuring 1280 x 800 resolution image capture
- WLAN^{1,3}: Intel® Wireless WiFi Link 5100 802.11a/b/g/Draft-N Wi-Fi CERTIFIED™ network connection, featuring MIMO technology
- WPAN¹: Bluetooth® 2.1+EDR (Enhanced Data Rate)
- WWAN^{1,3,12}: UMTS/HSPA at 850/900/1900/2100 MHz and quad-band GSM/GPRS/EDGE (850/900/1800/1900 MHz) upgradeable to 7.2 Mb/s HSDPA and 5.7 Mb/s HSUPA supporting receiver diversity and equalizing at 2100 MHz (for 3G models)
- LAN: Gigabit Ethernet, Wake-on-LAN ready

Privacy Control

- BIOS user, supervisor passwords
- Kensington lock slot

Dimensions and Weight¹

- 377.1 (W) x 254 (D) x 25.7 (H) mm (14.85 x 10 x 1.08/1.01 inches)
- 2.4 kg (5.29 lbs.) with 6-cell battery pack

Power¹

- ACPI 3.0 CPU power management standard: supports Standby and Hibernation power-saving modes
- 63W 5600mAh 6-cell Li-ion battery pack:
 - 8-hour battery life¹³
- 3-pin 65W AC adapter
- ENERGY STAR®

Special Keys and Controls

- 103/104/107-key keyboard
- 12 function keys, four cursor keys, Windows® key, international language support, independent US dollar and Euro symbol keys
- Multi-gesture touchpad, supporting two-finger scroll, pinch, rotate, flip
- Capacitive-touch launch keys: Gateway PowerSave and MyBackup, Communication®, touchpad lock

I/O Ports¹

- Multi-in-1 card reader
- Three USB 2.0 ports
- HDMI™ port with HDCP support
- External display (VGA) port
- Headphone/speaker/line-out jack with one jack supporting S/PDIF
- Microphone-in jack
- Ethernet (RJ-45) port
- DC-in jack for AC adapter

Software¹⁴

- Gateway 3G Connection Manager
- Gateway Launch Manager
- Gateway MyBackup
- Gateway PowerSave Solution
- Gateway Recovery Management
- Adobe® Reader®
- Adobe® Flash® Player
- CyberLink® PowerDVD™
- CyberLink® Power2Go™
- Google Toolbar™
- Google™ Setup
- Microsoft® Works with Office Home and Student 2007 Trial
- Norton™ Online Backup
- Norton Internet Security™ 2009 Trial (60 days)
- Oberon GameZone
- Wild Tangent

Optional Items¹

- 1 GB / 2 GB DDR3 1066MHz soDIMM module
- 6-cell Li-ion battery pack
- Gateway PowerSave 3-pin 65W AC adapter
- External USB floppy disk drive
- External USB 56K modem

Windows Vista® Life without Walls™ Gateway recommends Windows 7.

- 1 Specifications vary depending on model.
- 2 64-bit software is required to enjoy the advantages of 64-bit processing.
- 3 Actual throughput may vary depending on network conditions and environmental factors such as network traffic or overhead, building construction and access point settings.
- 4 All available system memory may be allocated for system resource requirements.
- 5 Shared system memory may be allocated to support integrated graphics, depending on system memory size and other factors. Actual system memory available to the operating system will be reduced by the amount of dedicated and shared system memory utilized by the graphics solution and resources required by the operating environment.

- 6 For models with discrete graphics.
- 7 For systems with 4 GB of system memory. The total graphics memory visible to the OS is less than the actual size allocated from the physical memory installed and varies depending on the configuration under a 32-bit OS.
- 8 For models with integrated graphics.
- 9 Dolby® is a registered trademark of Dolby® Laboratories.
- 10 Supports 7.1-channel surround sound and 2-channel stereo output (multiple streaming).
- 11 1 GB is 1 billion bytes. Actual formatted capacity is less and may vary depending on preloaded materials and operating environment.
- 12 Manufacturing option, with the Gobi2000 module.
- 13 Battery life varies depending on product specifications, computer settings, and applications or features launched. All batteries' maximum capacity diminishes with time and use.
- 14 Bundled software may vary depending on hardware configuration, OS, and regional availability.

In a continuing effort to improve the quality of our products, information in this document is subject to change without notice. Images shown are only representations of some of the configurations available for this model. Availability may vary depending on region.

As a phenomenon known to thin-film transistors (TFTs), liquid crystal displays (LCDs) commonly exhibit a small number of discoloration dots, as so-called "non-conforming pixels." This phenomenon is a limitation of TFT LCD technology, not a product defect, and as such is not covered by Gateway's warranty.

© 2009 All rights reserved.

Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel is a registered trademark of Intel Corporation.

About Gateway

Since its founding in 1985, Irvine, Calif.-based Gateway has been a technology pioneer, offering award-winning products and world-class service to customers worldwide. Gateway is a wholly owned subsidiary of Acer Inc., the world's third-largest PC company. See www.gateway.com for more information.



EC54 Specifications

Operating system¹

- Genuine Windows[®] 7 Home Premium 64-bit²

CPU/chipset¹

- Intel[®] Pentium[®] processor **SU4100** (2 MB L2 cache, 1.30 GHz, 800 MHz FSB, 10 W), supporting Intel[®] 64 architecture
- Intel[®] Celeron[®] processor **SU2300** (1 MB L2 cache, 1.20 GHz, 800 MHz FSB, 10 W), supporting Intel[®] 64 architecture
- Intel[®] Celeron[®] processor **743/723** (1 MB L2 cache, 1.30/1.20 GHz, 800 MHz FSB, 10 W), supporting Intel[®] 64 architecture
- Mobile Intel[®] GS45 Express Chipset

System memory^{1,3,4}

- Dual-channel DDR3 SDRAM support
- Up to 4 GB of DDR3 1066 MHz memory, upgradeable to 8 GB using two soDIMM modules

Display

- 15.6" HD 1366 x 768 pixel resolution, high-brightness (200-nit), Gateway Ultrabright™ LED-backlit TFT LCD
- 16:9 aspect ratio

Graphics¹

- ATI Mobility Radeon™ HD 43305 with up to 23046 MB of HyperMemory™ (512 MB of dedicated DDR3 VRAM, up to 1792 MB of shared system memory), supporting Unified Video Decoder (UVD), OpenEXR High Dynamic-Range (HDR) technology, Shader Model 4.1, Microsoft[®] DirectX[®] 10.1
- Mobile Intel[®] GS45 Express Chipset with integrated 3D graphics,⁷ featuring Intel[®] Graphics Media Accelerator 4500MHD (Intel[®] GMA 4500MHD) up to 1695 MB of Intel[®] Dynamic Video Memory Technology 5.0 (64 MB of dedicated video memory, up to 1631 MB of shared system memory), supporting Microsoft[®] DirectX[®] 10
- Dual independent display support
- 16.7 million colors
- External resolution/refresh rate:
 - 2048 x 1536: 75/60 Hz
 - 1920 x 1440: 85/75/60 Hz
 - 1920 x 1200: 75/60 Hz
 - 1920 x 1080: 100/85/75/60 Hz
 - 1680 x 945: 100/85/75/60 Hz
 - 1600 x 1200: 120/100/85/75/60 Hz
 - 1600 x 900: 120/100/85/75/60 Hz
 - 1400 x 1050: 85/75/60 Hz
 - 1366 x 768: 85/75/60 Hz
 - 1280 x 1024: 120/100/85/75/60 Hz

- 1280 x 960: 85/75/60 Hz
- 1280 x 768: 85/75/60 Hz
- 1280 x 720: 100/85/75/60 Hz
- 1024 x 768: 120/100/85/75/60 Hz
- 800 x 600: 120/100/85/72/60 Hz
- 640 x 480: 120/100/85/75/60 Hz
- MPEG-2/DVD decoding
- WMV9 (VC-1) and H.264 (AVC) decoding
- HDMI™ (High-Definition Multimedia Interface) with HDCP (High-bandwidth Digital Content Protection) support

Audio

- Optimized 2nd Generation Dolby® Sound Room®⁸ audio enhancement, featuring Dolby® Headphone, Dolby® Natural Bass and Dolby® Sound Space Expander
- Two built-in stereo speakers
- High-definition audio support
- S/PDIF (Sony/Philips Digital Interface)⁹ support for digital speakers
- Built-in microphone
- MS-Sound compatible

Storage

- 160/250/320/500 GB or larger hard disk drive¹, 10
- Multi-in-1 card reader, supporting Secure Digital™ (SD) Card, MultiMediaCard (MMC), Memory Stick™ (MS),
- Memory Stick PRO™ (MS PRO), xD-Picture Card™ (xD)

Optical media drive

- 8X DVD-Super Multi double-layer drive:
 - Read: 24X CD-ROM, 24X CD-R, 24X CD-RW, 8X DVD-ROM, 8X DVD-R, 8X DVD+R, 6X DVD-ROM DL (double-layer), 6X DVD-R DL (double-layer), 6X DVD+R DL (double-layer), 6X DVD-RW, 6X DVD+RW, 5X DVD-RAM
 - Write: 24X CD-R, 16X CD-RW, 8X DVD-R, 8X DVD+R, 4X DVD-R DL (double-layer), 4X DVD+R DL (double-layer), 6X DVD-RW, 8X DVD+RW, 5X DVD-RAM

Communication

- Video Conference¹, featuring:
 - Integrated webcam, featuring 640 x 480 resolution image capture
- WLAN1, 11: Integrated Gateway 802.11b/g/Draft-N Wi-Fi CERTIFIED™ network connection
- WLAN1, 11: Intel® Wireless WiFi Link 1000 802.11b/g/Draft-N Wi-Fi CERTIFIED™ network connection, supporting MIMO technology
- WPAN1: Bluetooth® 2.1+EDR (Enhanced Data Rate)

CHAPTER 1: System Specifications

- WWAN1, 11, 12 : UMTS/HSPA at 850/900/2100 MHz and quad-band GSM/GPRS/EDGE (850/900/1800/1900 MHz) upgradeable to 7.2 Mb/s HSDPA and 5.7 Mb/s HSUPA supporting receiver diversity and equalizing at 2100 MHz (for 3G models)
- LAN: Gigabit Ethernet, Wake-on-LAN ready

Privacy control

- BIOS user, supervisor passwords
- Kensington lock slot

Dimensions and weight¹

- 377.1 (W) x 254 (D) x 25.7 (H) mm (14.85 x 10 x 1.08/1.01 inches)
- 2.4 kg (5.29 lbs.) with 6-cell battery pack

Power¹

- ACPI 3.0 CPU power management standard: supports Standby and Hibernation power-saving modes 63 W 5600 mAh 6-cell Li-ion battery pack:
 - 8-hour battery life¹³
- 3-pin 65 W AC adapter
- ENERGY STAR[®]

Special keys and controls¹

- 103/104/107-key keyboard
- 12 function keys, four cursor keys, Windows[®] key, international language support, independent US dollar and Euro symbol keys
- Multi-gesture touchpad, supporting two-finger scroll, pinch, rotate, flip
- Capacitive-touch launch keys: Gateway PowerSave and MyBackup, Communication[®], touchpad lock

I/O ports¹

- Multi-in-1 card reader
- Three USB 2.0 ports
- HDMI[™] port with HDCP support¹
- External display (VGA) port
- Headphone/speaker/line-out jacks with one jack supporting S/PDIF
- Microphone-in jack
- Ethernet (RJ-45) port
- DC-in jack for AC adapter

Software¹⁴

- Gateway 3G Connection Manager
- Gateway Launch Manager
- Gateway MyBackup
- Gateway PowerSave Solution
- Gateway Recovery Management

- Adobe® Flash® Player
- Adobe® Reader®
- Cyberlink® PowerDVD™
- Cyberlink® Power2Go™
- Google™ Toolbar™
- Google™ Setup
- Microsoft® Works with Office Home and Student 2007 Trial¹⁴
- Norton™ Online Backup
- Norton Internet Security™ 2009 Trial (60 days)
- Oberon GameZone
- Wild Tangent®

Optional items¹

- 1 GB / 2 GB DDR3 1066 MHz soDIMM module
- 6-cell Li-ion battery pack
- Gateway PowerSave 3-pin 65 W AC adapter
- External USB floppy disk drive
- External USB 56K modem

Windows® Life without Walls™ Gateway recommends Windows 7.

- 1 Specifications vary depending on model.
- 2 64-bit software is required to enjoy the advantages of 64-bit processing.
- 3 All available system memory may be allocated for system resource requirements.
- 4 Shared system memory may be allocated to support integrated graphics, depending on system memory size and other factors. Actual system memory available to the operating system will be reduced by the amount of dedicated and shared system memory utilized by the graphics solution and resources required by the operating environment.
- 5 For models with discrete graphics.
- 6 For systems with 4 GB of system memory. The total graphics memory visible to the OS is less than the actual size allocated from the physical memory installed and varies depending on the configuration under a 32-bit OS.
- 7 For models with integrated graphics.
- 8 Dolby® is a registered trademark of Dolby® Laboratories .
- 9 Supports 7.1-channel surround sound and 2-channel stereo output (multiple streaming).
- 10 1 GB is 1 billion bytes. Actual formatted capacity is less and may vary depending on preloaded materials and operating environment.
- 11 Actual throughput may vary depending on network conditions and environmental factors such as network traffic or overhead, building construction and access point settings.
- 12 Manufacturing option, with the Gobi2000 module.
- 13 Battery life varies depending on product specifications, computer settings, and applications or features launched. All batteries' maximum capacity diminishes with time and use.
- 14 Bundled software may vary depending on hardware configuration, OS, and regional availability.

CHAPTER 1: System Specifications

In a continuing effort to improve the quality of our products, information in this document is subject to change without notice. Images shown are only representations of some of the configurations available for this model. Availability may vary depending on region.

As a phenomenon known to thin-film transistors (TFTs), liquid crystal displays (LCDs) commonly exhibit a small number of discoloration dots, as so-called "non-conforming pixels." This phenomenon is a limitation of TFT LCD technology, not a product defect, and as such is not covered by warranty.

© 2009 All rights reserved.

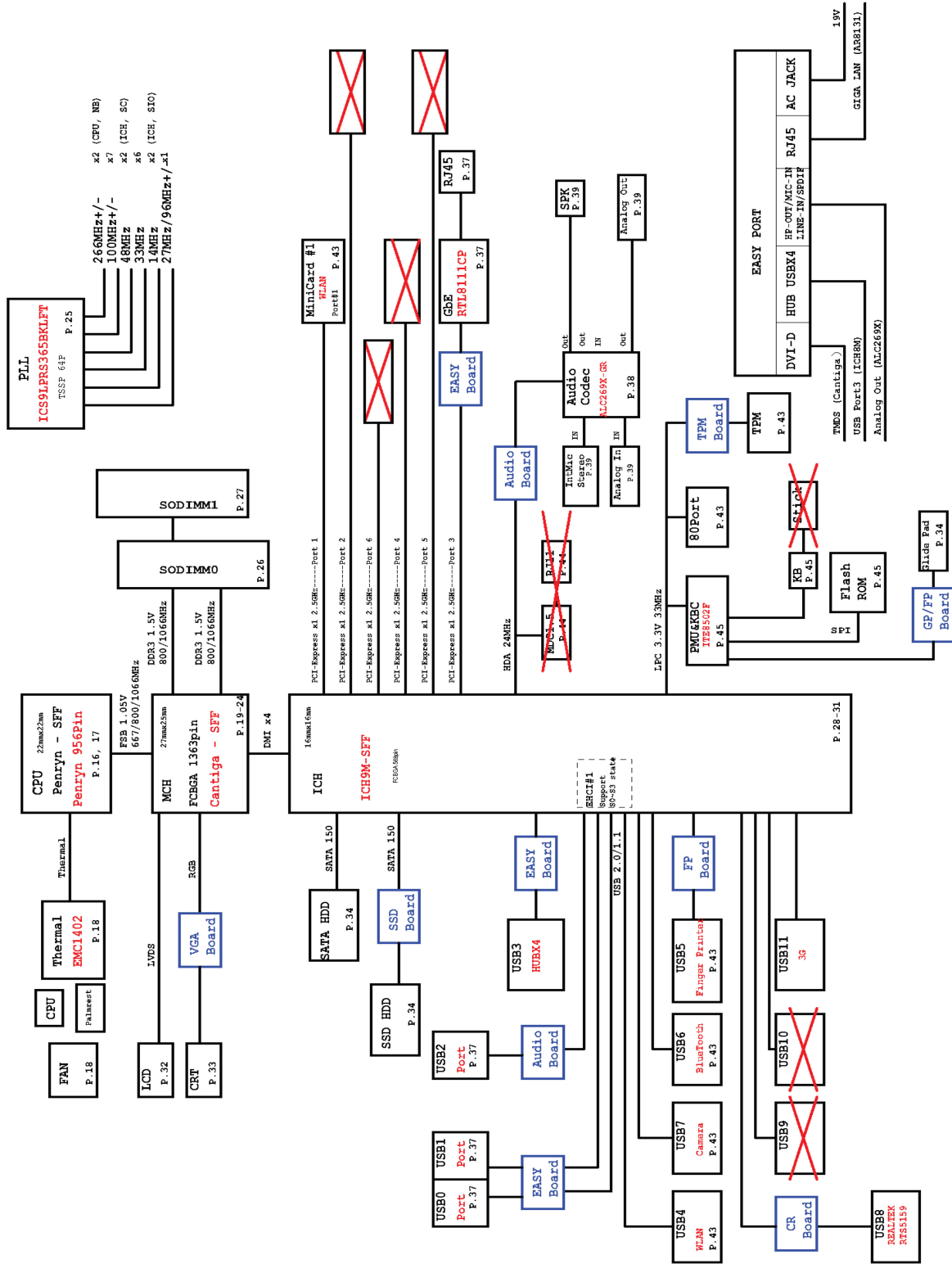
Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel and Pentium are registered trademarks of Intel Corporation.

About Gateway

Since its founding in 1985, Irvine, Calif.-based Gateway has been a technology pioneer, offering award-winning products and world-class service to customers worldwide. Gateway is a wholly owned subsidiary of Acer Inc., the world's third-largest PC company. See www.gateway.com for more information..

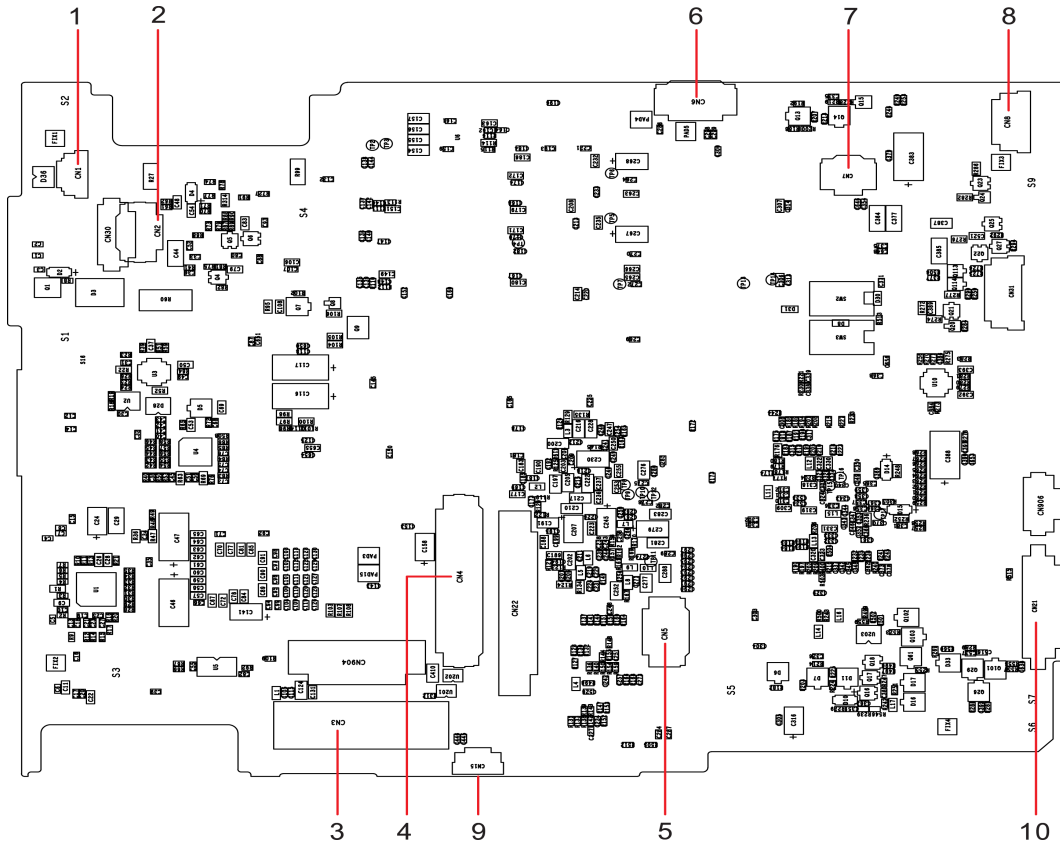


System Block Diagram



Board Layout

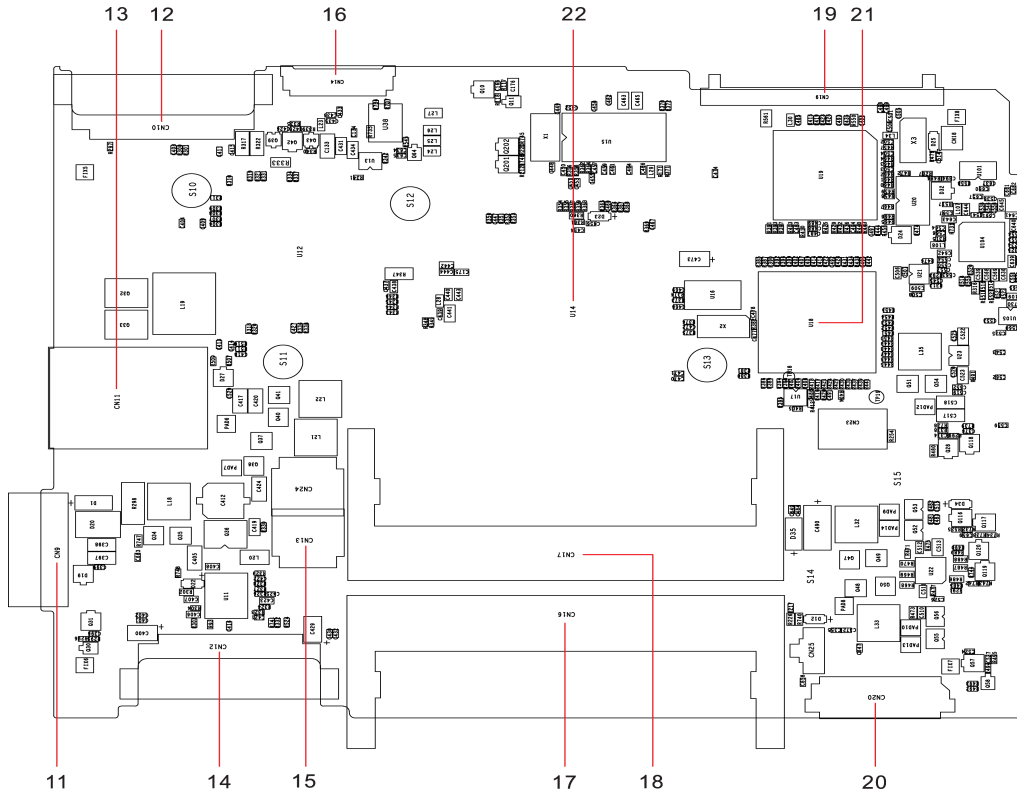
Top View



Gateway EC58 M/B layout and connector location Top view

No.	Name	Description
1	CN1	CCD cable CNTR
2	CN2	MMB cable CNTR
3	CN3	LVDS cable CNTR
4	CN4	Keyboard CNTR
5	CN5	Touch Pad FFC CNTR
6	CN6	SSD cable CNTR
7	CN7	Card reader CNTR
8	CN8	BT cable CNTR
9	CN15	Fan cable CNTR
10	CN21	Audio board CNTR

Bottom View



Gateway EC88 M/B layout and connector location Bottom view

No.	Name	Description
11	CN9	Battery CNTR
12	CN10	PCI-E socket
13	CN11	SIM card socket
14	CN12	PCI-E socket
15	CN13	Power cable CNTR
16	CN14	LVDS cable CNTR
17	CN16	DIMM socket
18	CN17	DIMM socket
19	CN19	HDD socket
20	CN20	USB board CNTR
21	U18	South Bridge
22	U14	North Bridge

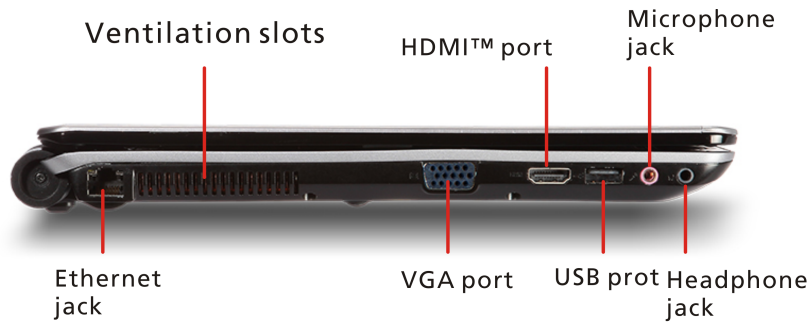
Notebook Product Tour






Front



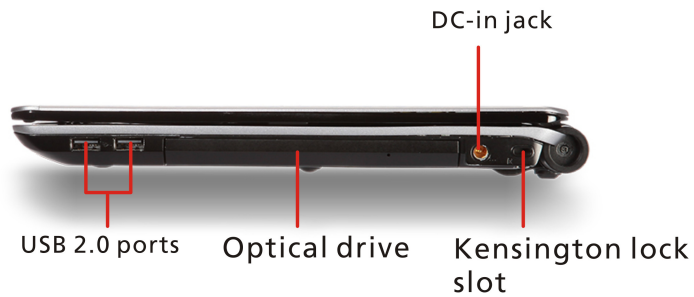
Component	Icon	Description
Ventilation fan		<p>Helps cool internal components.</p> <p>Warning: Do not work with the notebook resting on you lap. If the air vents are blocked, the notebook may become hot enough to harm your skin.</p> <p>Caution: Do not block or insert objects into these slots. If these slots are blocked, your notebook may overheat resulting in unexpected shutdown or permanent damage to the notebook.</p> <p>Caution: Provide adequate space around your notebook so air vents are not obstructed. Do not use the notebook on a bed, sofa, rug, or other similar surface.</p>
Battery charge indicator		<ul style="list-style-type: none"> ▪ LED blue - Battery is fully charged (when plugged into AC). ▪ LED amber - Battery is charging. <p>Important: This LED only lights up when your notebook is connected to AC power.</p> <ul style="list-style-type: none"> ▪
Multi-in-1 card reader		<p>Insert a memory card from a digital camera, MP3 player, PDA, or cellular telephone into the memory card reader. The memory card reader supports Memory Stick®, Memory Stick Pro®, MultiMediaCard™, Secure Digital™, and xD-Picture Card™ cards.</p>




Left



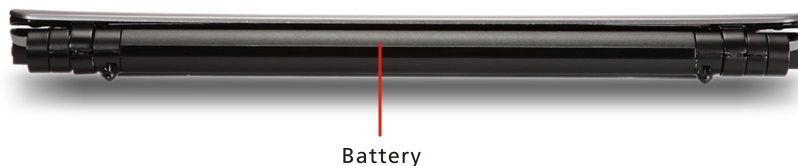
Component	Icon	Description
Ethernet jack		Plug an Ethernet network cable into this jack. Plug the other end of the cable into a cable modem, DSL modem, or an Ethernet network jack.
Ventilation fan		Helps cool internal components. Warning: Do not work with the notebook resting on you lap. If the air vents are blocked, the notebook may become hot enough to harm your skin. Caution: Do not block or insert objects into these slots. If these slots are blocked, your notebook may overheat resulting in unexpected shutdown or permanent damage to the notebook. Caution: Provide adequate space around your notebook so air vents are not obstructed. Do not use the notebook on a bed, sofa, rug, or other similar surface.
Monitor port		Plug an analog VGA monitor or projector into this port.
HDMI out jack	HDMI	Plug an HDMI device, such as a high definition television, into this optional jack.
USB port		Plug a USB device (such as a diskette drive, flash drive, printer, scanner, camera, keyboard, or mouse) into this port.
Microphone jack		Plug a microphone into this jack.
Headphone jack		Plug amplified speakers or headphones into this jack. The built-in speakers are turned off when speakers or headphones are plugged into this jack. <ul style="list-style-type: none"> Headphone with SPDIF support

Right



Component	Icon	Description
USB port		Plug a USB device (such as a diskette drive, flash drive, printer, scanner, camera, keyboard, or mouse) into this port.
Optical drive		
Power connector		Plug the AC adapter cable into this connector.
Kensington™ lock slot		Secure your notebook to an object by connecting a Kensington cable lock to this slot.

Back




Battery




Component	Icon	Description
Battery		Provides power when the notebook is not plugged into AC power.

Bottom

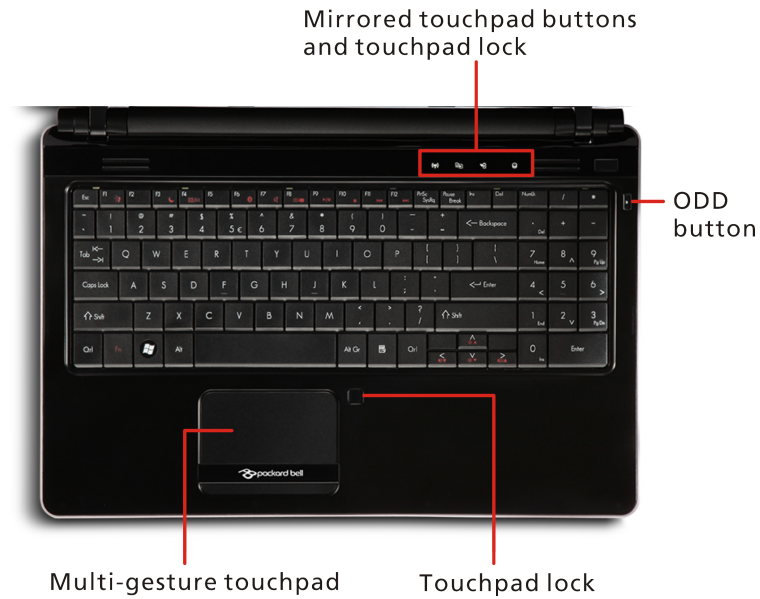




Component	Icon	Description
Battery		Provides power when the notebook is not plugged into AC power.
Battery lock		Slide to unlock the battery.

CHAPTER 1: System Specifications

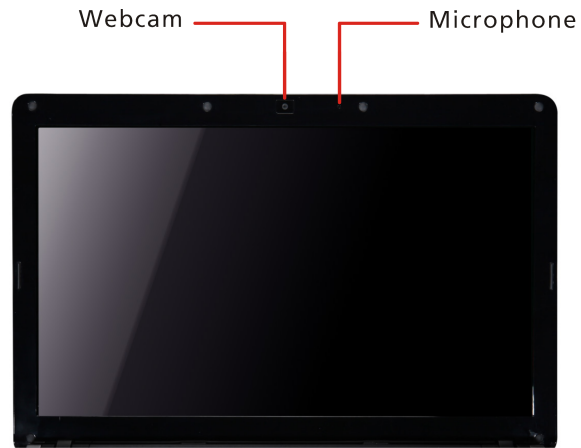
Component	Icon	Description
Ventilation slots and cooling fan		<p>Helps cool internal components.</p> <p>Warning: Do not work with the notebook resting on your lap. If the air vents are blocked, the notebook may become hot enough to harm your skin.</p> <p>Caution: Do not block or insert objects into these slots. If these slots are blocked, your notebook may overheat resulting in unexpected shutdown or permanent damage to the notebook.</p> <p>Caution: Provide adequate space around your notebook so air vents are not obstructed. Do not use the notebook on a bed, sofa, rug, or other similar surface.</p>
Memory bay		Memory modules are located in this bay.
Hard drive bay		The hard drive is located in this bay.
Battery latch		Slide to release the battery.

Keyboard Area



Component	Icon	Description
Power button		Press to turn the power on or off. You can also configure the power button for Sleep/Resume mode.
Speakers		Left and right speakers deliver stereo audio output.
Keyboard		Provides all the features of a full-sized, computer keyboard.
Touchpad		Provides all the functionality of a mouse.
Touchpad toggle		Turn the internal touchpad on and off.
Capacitive touch keys		Press to access capacitive touch key function.
Status indicators		Inform you when a drive is in use or when a button has been pressed that affects how the keyboard is used.

LCD Panel



Component	Icon	Description
Webcam		Use to let others see who they are communicating with when making VoIP calls.
Microphone		Use to talk through when making Voice over Internet Protocol (VoIP) calls.

Hardware Specifications and Configurations

Processor

Item	Specification
Processor packing	uFCPGA
Support Processor @ Launch	ULV Centrino,PDC, ICPM, 10W CPU
On-die L2 Cache	Up to 6 MB
FSB	1067 MHz
TDP (Thermal)	10W
Socket type	BGA

Second Level Cache

Item	Specification
North Bridge	GS45
South Bridge	ICH9M SFF

System Memory

Item	Specification
Technology	DDR3 800 / 1067 MHz
Base momory	DDR3 SO-DIMM x 1 slot (512) / 1024/2048/4096 MB DDR3 SDRAM
Expansion memory	DDR3 SO-DIMM x 1 slot (512) / 1024/2048/4096 MB DDR3 SDRAM
Maximum memory size	8 GB (Thermal evaluation based on 8 GB)

Lan Interface

Item	Specification
Controller (AVAP)	Atheros AR8131
SPEED	10 / 100 / 1000 Mb/s

Wireless LAN

Item	Specification
Module	Intel SP, 3rd 1 x 2 BGN/Y
Interface	Mini card (1)
Antenna	2

Pointing Device

Item	Specification
Glide	Multi-touch touch PAD

Bluetooth Interface

Item	Specification
Module	FOX_BRM_2.0 F/W T60H928.11
Antenna	on board
controller	CSR
Bluetooth module	Internal USB 2.0 Dongle

Hard Disk Drive Interface

Item	Specification
Vendor & model name	Seagate ST9160310AS Seagate ST9250315AS Seagate ST9320320AS Seagate ST9500325AS
Capacity (MB)	160 GB 250 GB 320 GB 500 GB
Bytes per sector	512
Data heads	2 2 4 4

Item	Specification
Disks	1 1 1 or 2 2
Spindle speed (RPM)	5400
Performance Specification	
Buffer size	8
Interface	SATA 1.0, Serial ATA Revision 2.6
Max. media transfer rate (disk-buffer, Mbytes/s)	3.0 G/S
Data Transfer Rate (host-buffer, Mbytes/s)	
Ultra DMA mode-5	Ultra DMA modes 0 - 6
DC Power Requirement	
Voltage tolerance	+5V ± 5%
Item	Specification
Vendor & model name	Toshiba MK1655GSX Toshiba MK2555GSX Toshiba MK3255GSX Toshiba MK5055GSX
Capacity (MB)	160 GB 250 GB 320 GB 500 GB
Bytes per sector	512
Data heads	4 or 2 4 or 2 4 4
Disks	2 or 1 2 or 1 2 2 or 1
Spindle speed (RPM)	5400

CHAPTER 1: System Specifications

Item	Specification
Performance Specification	
Buffer size	8
Interface	SATA 1.0, Serial ATA Revision 2.6
Max. media transfer rate (disk-buffer, Mbytes/s)	3.0 G/S
Data Transfer Rate (host-buffer, Mbytes/s)	
Ultra DMA mode-5	Ultra DMA modes 0 - 6
DC Power Requirement	
Voltage tolerance	+5V ± 5%

Item	Specification
Vendor & model name	HGST HTS545016B9A300 HGST HTS545025B9A300 HGST HTS545032B9A300 HGST HTS545050B9A300
Capacity (MB)	160 GB 250 GB 320 GB 500 GB
Bytes per sector	512
Data heads	2 2 2 4
Disks	1 1 2 2
Spindle speed (RPM)	5400
Performance Specification	
Buffer size	8
Interface	SATA 1.0, Serial ATA Revision 2.6

Item	Specification
Max. media transfer rate (disk-buffer, Mbytes/s)	3.0 G/S
Data Transfer Rate (host-buffer, Mbytes/s)	
Ultra DMA mode-5	Ultra DMA modes 0 - 6
DC Power Requirement	
Voltage tolerance	+5V ± 5%
Item	Specification
Vendor & model name	WD WD1600BEVT-22ZCT0 WD WD2500BEVT-22ZCT0 WD WD3200BEVT-22ZCT0 WD WD5000BEVT-22ZAT0
Capacity (MB)	160 GB 250 GB 320 GB 501 GB
Bytes per sector	513
Data heads	2 2 3 4
Disks	1 1 2 2
Spindle speed (RPM)	5400
Performance Specification	
Buffer size	8
Interface	SATA 1.0, Serial ATA Revision 2.6
Max. media transfer rate (disk-buffer, Mbytes/s)	3.0 G/S

CHAPTER 1: System Specifications

Item	Specification
Data Transfer Rate (host-buffer, Mbytes/s)	
Ultra DMA mode-5	Ultra DMA modes 0 - 6
DC Power Requirement	
Voltage tolerance	+5V ± 5%

Audio Interface

Item	Specification
Sound Codec (AVAP)	Realtek ALC269
Internal Speaker	2 (1.5 Watt)
Internal Microphone	Array MIC x 1
Sound Volume	By Hot Key

LCD Panel

Item	Specification
Vendor & model name	13.3" WXGA Glare B133XW01
Screen diagonal (mm)	336.6 (13.25W")
Active area (mm)	293.42 x 164.97
Display resolution (pixels)	1366 x 3 (RGB) x 768
Pixel pitch	0.2148 x 0.2148
Pixel arrangement	R.G.B. Vertical Stripe
Display mode	Normally White
Typical white luminance (cd/m2) also called Brightness	220 typ. (5 points average) 187 min. (5 points average)
Luminance uniformity	1.25 max. (5 points)
Contrast ratio	500 typ
Response time (optical rise time/fall time) msec	8 typ / 12 Max

Item	Specification		
Nominal input voltage VDD	+3.3 typ.		
Typical power consumption (watt)	TBD		
Weight (g)	315 max.		
Physical Size (mm)	L	W	T
	306.8	193.83	3.8
Electronical interface	1 channel LVDs		
Support color	262K colors (RGB 6-bit)		
Viewing Angle (degree)	Min.	Typ.	Max.
Horizontal: Right/Left			
Vertical: Upper/Lower			
Horizontal (right)	-	45	-
CR=10 (left)		45	
Vertical (upper)	-	15	-
CR=10 (lower)		35	

Card Slot

Item	Specification
5 in 1 card reader (SD/MMC/MS/MSPro/XD)	ACE AGE 100

WebCAM

Item	Specification
Module	HD 1.0 M
Interface	USB

Keyboard

Item	Specification
Controller	Darfon AC4T
Type (AVAP)	Silm 13.3" 301.12 x 113.44 x 4.7 (Max / Texture)

I/O

Item	Specification
Monitor (VGA)	Yes
HDMI	Yes
USB	3
Stereo Mic-in	1
SPDIF	1
RJ45 (Shielding)	1
SIM Slot	1
mini card socket (Full size)	Full mini card (3G) x 1 & Half mini card (SP WLAN) x 1

Button

Item	Specification
Power on / off (with Visible LED)	1 (mechanical, White)
WLAN	1 (Orange, capacitive)
3G / BT	BT (Blue, capacitive, 3G use SW to launch without button)
Launch Key module	None
Back up Key	1 (capacitive, Blue flash)
Power consumption key	1 (mechanical, Green)
Volume Control	Volume up/down/mute (capacitive, blue)

Software

Item	Specification
Operation system	Vista
BIOS	InsydeH2O

Power Management

Item	Specification
Controller	ITE ITE8512F
Interface	LPC
AC adapter (AVAP)	65W
1st Battery (AVAP)	6 cell 2.2 / 2.6 / 2.8 / 2.9

Battery

Item	Specification
Vendor & model name	Battery SANYO AS-2009D 6cell AS09D34 (5200mAH)
Battery type	Li-ion
Pack capacity	5200mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.8V

Item	Specification
Vendor & model name	Battery SANYO AS-2009D 6 cell AS09D36 (5600mAH)
Battery type	Li-ion
Pack capacity	5600mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.9V

Item	Specification
Vendor & model name	Battery SIMPLO AS-2009D 6 cell AS09D70 (5600mAH)
Battery type	Li-ion
Pack capacity	5600mAH
Number of battery cell	6 cell

CHAPTER 1: System Specifications

Item	Specification
Normal voltage	11.1V
Charge voltage	12.9V

Item	Specification
Vendor & model name	Battery PANASONIC AS-2009D 6 cell AS09D56 (5800mAH)
Battery type	Li-ion
Pack capacity	5800mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	13V

Item	Specification
Vendor & model name	Battery SANYO AS-2009D 6 cell AS09D31 (4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

Item	Specification
Vendor & model name	Battery SONY AS-2009D 6 cell AS09D41(4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

Item	Specification
Vendor & model name	Battery PANASONIC AS-2009D 6 cell AS09D51(4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

Item	Specification
Vendor & model name	Battery SIMPLO AS-2009D 6 cell AS09D71(4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

Item	Specification
Vendor & model name	Battery SIMPLO AS-2009D 6 cell AS09D73(4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

Item	Specification
Vendor & model name	Battery SIMPLO AS-2009D 6 cell AS09D75(4400mAH)
Battery type	Li-ion
Pack capacity	4400mAH

CHAPTER 1: System Specifications

Item	Specification
Number of battery cell	6 cell
Normal voltage	11.1V
Charge voltage	12.6V

LED Status Indicator

Item	Specification
Power Status	1 (Blue / Orange flash)
1st Battery Status	1 (Blue / Orange)
HDD	1 (Blue)
Caps Lock	1 (Blue)
Num Lock	1 (Blue)
Wireless LAN	1 (Orange)
Bluetooth	1 (Blue)
Touch pad on / off	1 (capacitive, Orange, top side)
3G	1 (Green)

Security Features

Item	Specification
Kensington Lock Hole (7.5 mm diameter)	1

FAN

Item	Specification
Not Noise	As low as possible
Number	1

Physical Characteristics

Item	Specification
Dimensions	325(W) x 234(D) x 30.2/34.3(H)mm

Item	Specification
Thickness (maximum)	23.3 ~ 28.9mm
Weight (incl 1st Battery & super multi ODD)	1.8kg (3.96 lbs.) with 6-cell battery pack

CHAPTER 1: System Specifications

Contents

Chapter 1: System Specifications	1
Preface	2
Conventions	2
General Information	2
Features	3
System Block Diagram	13
Board Layout	14
Top View	14
Bottom View	15
Notebook Product Tour	16
Front	16
Left	17
Right	18
Back	19
Bottom	19
Keyboard Area	21
LCD Panel	22
Hardware Specifications and Configurations	23
Processor	23
Second Level Cache	23
System Memory	23
Lan Interface	23
Wireless LAN	24
Pointing Device	24
Bluetooth Interface	24
Hard Disk Drive Interface	24
Audio Interface	28
LCD Panel	28
Card Slot	29
WebCAM	29
Keyboard	29
I/O	30
Button	30
Software	30
Power Management	31
Battery	31
LED Status Indicator	34
Security Features	34
FAN	34
Physical Characteristics	34
Chapter 2: Replacing Notebook Components	v
General Information	vi
Tools Required	vi

Contents

Before You Beginvi
Disassembly Procedure Flowchart	vii
Removing the Battery Pack	viii
Removing the HDD and RAM	viii
Removing the Battery	ix
Removing the Keyboard	x
Removing FFC of Main Board	x
Removing Wireless Card and Thermal Module	xiv
Removing the Main Board	xv
Removing I/O Board and Panel	xvii
Disassembling the LCM Module	xx
Disassembling the External Module	xxi
Disassembling the HDD Module	xxi
Chapter 3: Troubleshooting	xxiii
Diagnosing Problems	xxiv
System Check Procedures	xxiv
External Diskette Drive Check	xxiv
External CD-ROM Drive Check	xxv
Keyboard or Auxiliary Input Device Check	xxv
Memory Check	xxvi
Power System Check	xxvi
Touchpad Check	xxvii
Power-On Self-Test (POST) Error Message	xxviii
Index of Error Messages	xxviii
Error Code List	xxviii
Error Message List	xxix
No-beep Error Message List	xxxi
InsydeH2O BIOS Beep Codes	xxxii
Index of Symptom-to-FRU Error Message	xxxvii
LCD-Related Symptoms	xxxvii
Indicator-Related Symptoms	xxxviii
Power-Related Symptoms	xxxviii
PCMCIA-Related Symptoms	xxxviii
Memory-Related Symptoms	xxxviii
Speaker-Related Symptoms	xxxix
Power Management-Related Symptoms	xxxix
Peripheral-Related Symptoms	xxxix
Keyboard/Touchpad-Related Symptoms	xl
Modem-Related Symptoms	xl
Intermittent Problems	xli
Undetermined Problems	xli

Chapter 4: FRU (Field Replaceable Unit) List	xliii
Introduction	xliv
Exploded Diagram	xlvi
Gateway EC58 FRU List	1
Chapter 5: Connector Locations	lxiii
Top View	lxiv
Bottom View	lxv
Appendix A: Model Definition and Configuration	lxvii
Appendix B: Online Support Information	lxix
Appendix C: Test Compatible Components	lxxiii
Introduction	lxxiv
Microsoft® Windows® Vista Environment Test	lxxiv
Chapter 6: System Utilities	lxxix
BIOS Setup Utility	lxxx
Invoking BIOS Setup Utility	lxxxii
BIOS Flash Utility	xcii

Contents

CHAPTER 3

Replacing Notebook Components

- [General Information](#)
- [Disassembly Procedure Flowchart](#)
- [Disassembling the External Module](#)

General Information

Tools Required

This chapter contains step-by-step procedures on how to disassemble the notebook computer Gateway EC58 for maintenance and troubleshooting.

To disassemble the computer, you need the following tools:

- Wrist grounding strap and conductive mat for preventing electrostatic discharge
- Small Philips screw driver
- Philips screwdriver
- Plastic flat head screw driver
- Tweezers



Important

The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatch when putting back the components.

When you remove the stripe cover, please be careful not to scrape the cover.

Before You Begin

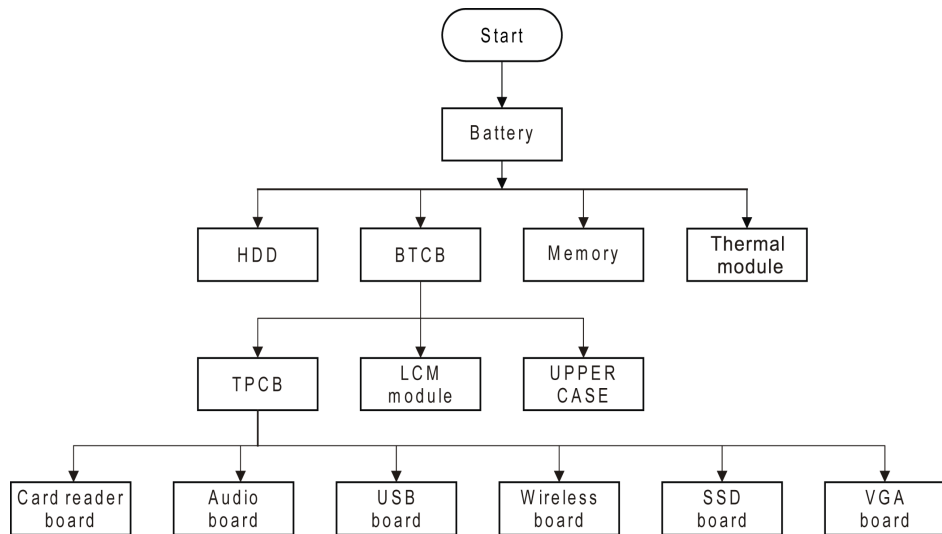
Before proceeding with the disassembly procedure, make sure that you do the following:

- Turn off the power to the system and all peripherals.
- Unplug the AC adapter and all power and signal cables from the system.
- Remove the battery pack.

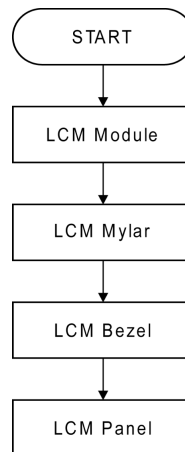
Disassembly Procedure Flowchart

The flowchart gives you a graphic representation on the entire disassembly sequence and instructs you on the components that need to be removed during servicing. For example, if you want to remove the system board, you must first remove the keyboard, then disassemble the inside assembly frame in that order.

Main unit disassembly flow chart

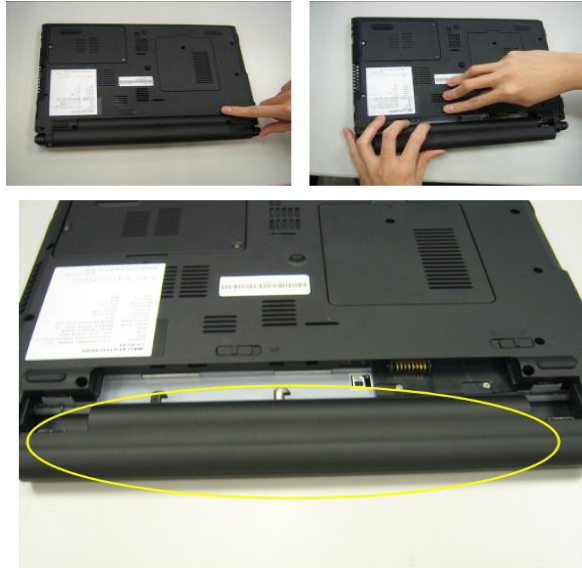


LCM module disassemble flow chart



Removing the Battery Pack

- ▶ **To remove the battery pack:**
 - 1 Release the battery lock.
 - 2 Slide the battery latch then remove the battery.



Note

Battery has been highlighted with the yellow circle as above image shows. Please detach the battery and follow local regulations for disposal.


Removing the HDD and RAM

- 3 Remove 3 screws on the HDD cover and remove HDD.



4 Removing the screw on RAM cover and remove Both of RAM.



	Type	Number
	M2*5(4.5D*0.8T)	4

Removing the Battery

5 Remove the RTC battery



Note RTC battery has been highlighted with yellow circle as above image shows. Please detach the RTC battery and follow local regulations for disposal.

Removing the Keyboard

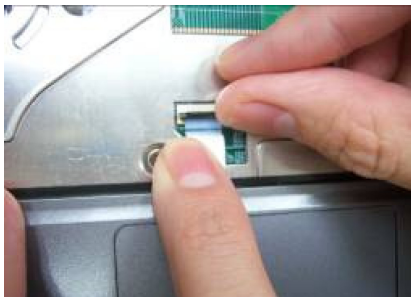
6 Disconnect 5 latches on the keyboard.



7 Remove the FFC behind the keyboard.



8 Remove Touch Pad FFC and lamp FFC.

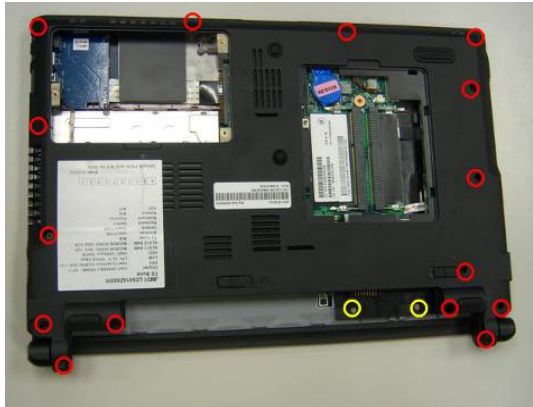


Removing FFC of Main Board

9 Use Tweezers to remove the rubber foot on the back of the notebook. There are 5 rubber feet.

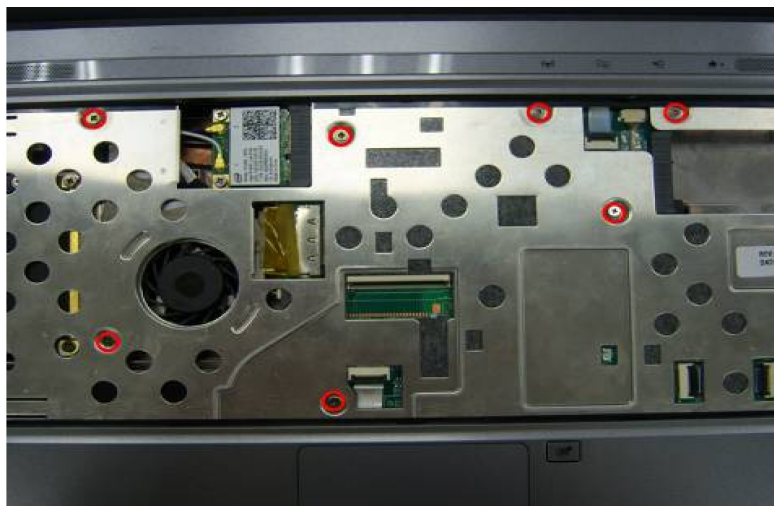


10 Remove all of the screws on the back of the notebook.



	<p>Type M2.*5(4.5D*0.8T)</p>	<p>Number 15(Red)</p>
	<p>Type M2*4(4.5D*0.5T)</p>	<p>Number 2(Yellow)</p>

11 Remove screws on the upper case.



	<p>Type M2*5(4.5D*0.8T)</p>	<p>Number 7</p>
--	---------------------------------	---------------------

CHAPTER 3: Replacing Notebook Components

- 12 Remove the dummy card.



- 13 Remove upper case and disconnect the connection between the audio board and upper case.



- 14 Disconnect all of the FFC on the main board.



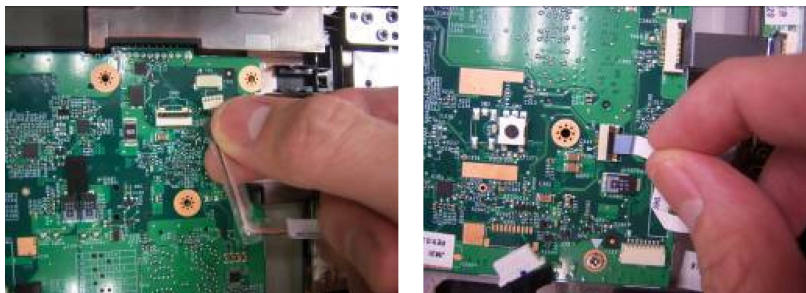
15 Remove the FFC of the panel and audio board.



16 Remove the FFC of Bluetooth and SSD board.

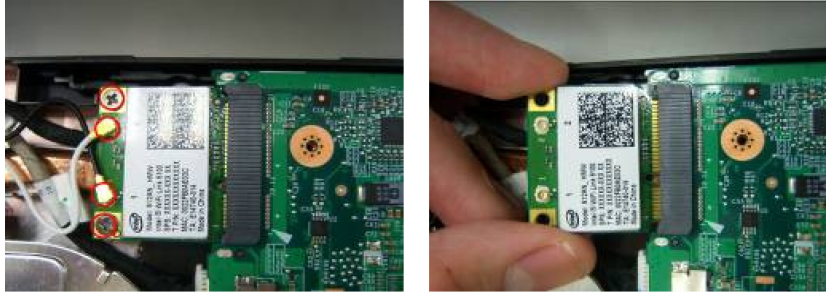



17 Remove the connector of camera and the FFC of card reader board.



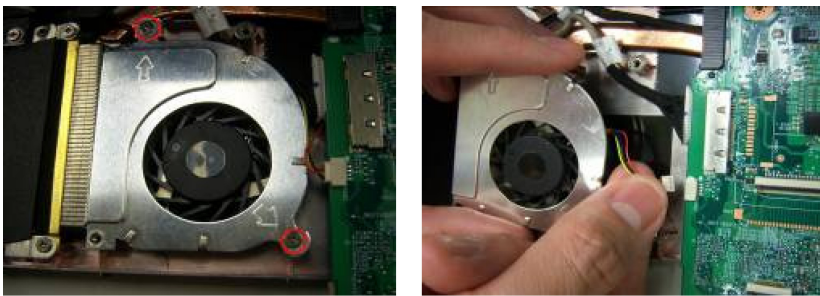
Removing Wireless Card and Thermal Module


18 Release wireless screw and line and remove wireless card.



	Type	Number
	M2.5*3	2


19 Release the screws of fan and take it off.



	Type	Number
	M2*4(4.5D*0.5T)	2

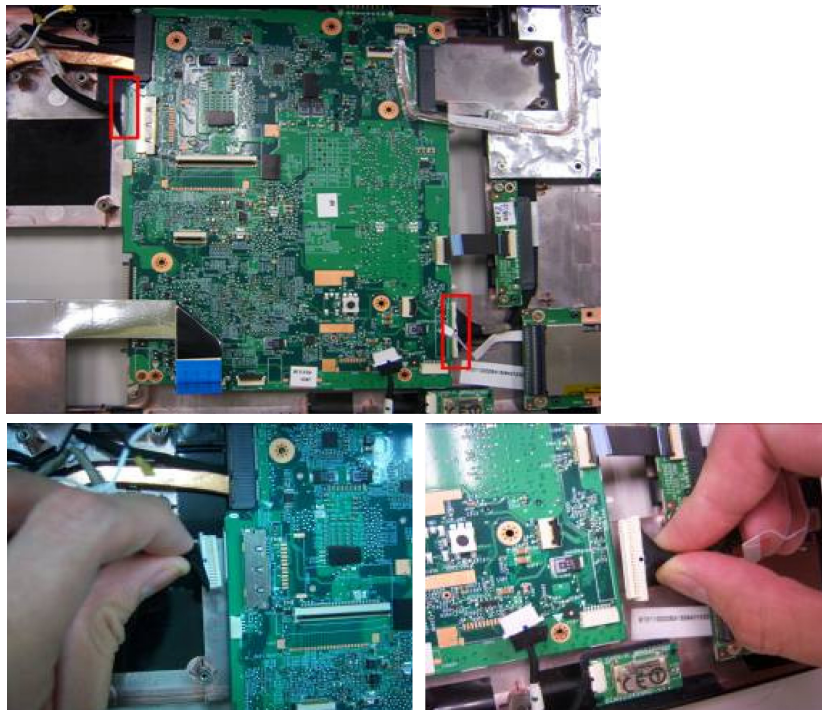
20 Loose 4 screws and remove it.



	Type	Number
	M2*4(4.5D*0.5T)	4

Removing the Main Board


21 Remove connection CRT board and USB board.



CHAPTER 3: Replacing Notebook Components

22 Remove the main board after losing these 2 screws.

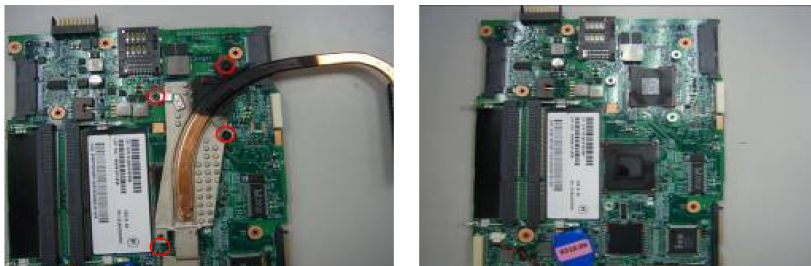



	Type	Number
	M2*4(4.5D*0.5T)	2

23 Remove DC in connector and remove the whole main board.



24 Remove 4 screws on the thermal pipe and remove it.





	Type	Number
	M2*3	4

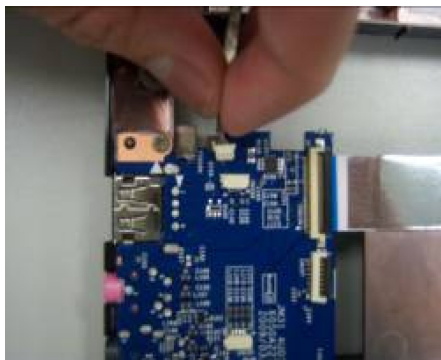
Removing I/O Board and Panel

25 Remove 7 screws on the bezel.



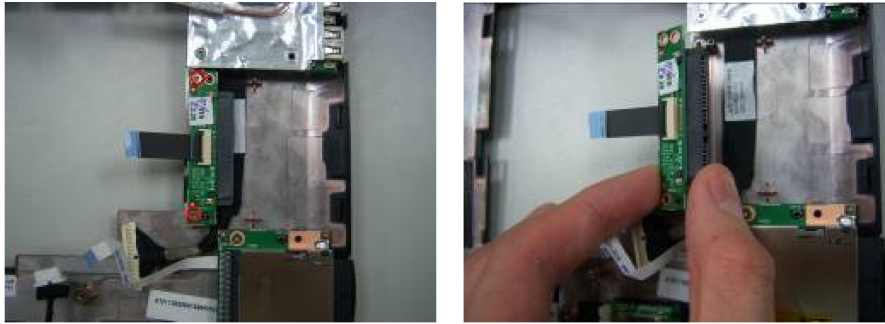
	Type M2*3	Number 6(Red)
	M2*4(4.5D*0.5T)	1(Yellow)


26 Release connection of audio board and panel and remove the panel.



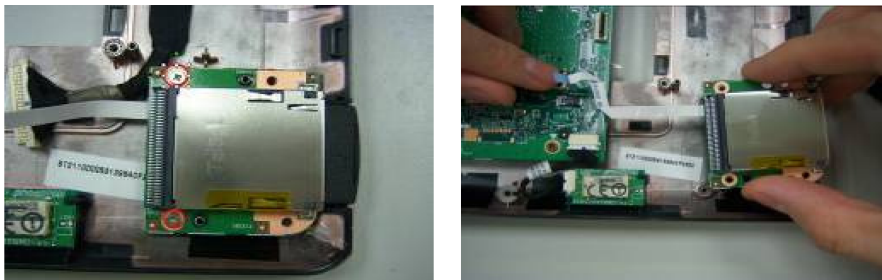
CHAPTER 3: Replacing Notebook Components


27 Loose 2 screws on SSD board and remove it.



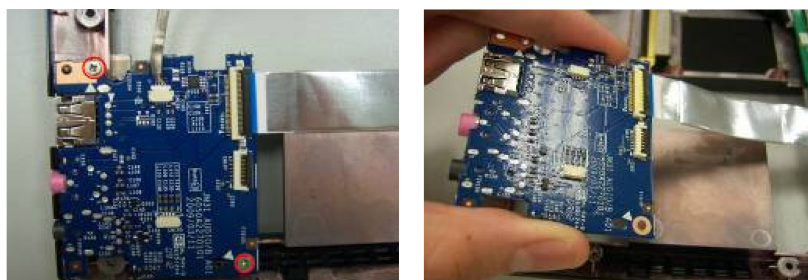
	Type	Number
	M2*4(4.5D*0.5T)	2


28 Loose 2 screws on the Card Reader board and remove it.



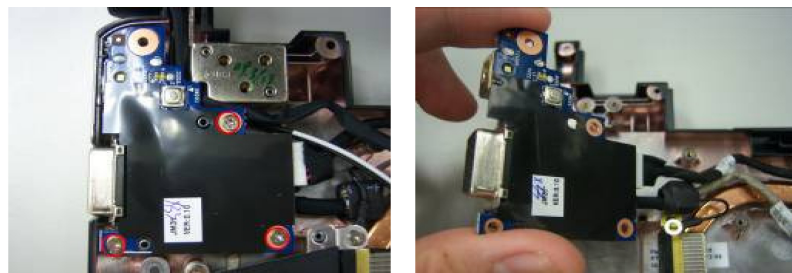
	Type	Number
	M2*4(4.5D*0.5T)	2


29 Loose 2 screws on audio board and remove it.



	Type	Number
	M2*4(4.5D*0.5T)	2


30 Remove 3 screws on VGA board and remove it.



	Type	Number
	M2*4(4.5D*0.5T)	3

31 Remove 3 screws on USB board and remove it.



	Type	Number
	M2*4(4.5D*0.5T)	3




Note

Replace the USB Board need to flash new UUID.

Disassembling the LCM Module

- 32 Remove 4 bezel mylar.
- 33 Release 4 LCM screws under the mylar.
- 34 Remove the bezel.



	Type	Number
	M2.5X4 (4.5DX0.5T)	4

- 35 Remove 4 steal parts to take off panel.



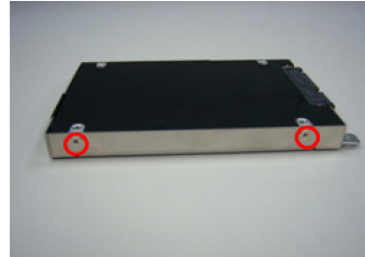
- 36 Remove LCM cable on the back of panel.




Disassembling the External Module

Disassembling the HDD Module

1 Remove the 4 screws from both sides of HDD and divide them.



	Type	Number
	M2.5*3	4



CHAPTER 3: Replacing Notebook Components

CHAPTER 4

Troubleshooting

- Diagnosing Problems
- System Check Procedures
- Power-On Self-Test (POST) Error Message
- Index of Error Messages
- InsydeH2O BIOS Beep Codes
- Index of Symptom-to-FRU Error Message
- Intermittent Problems
- Undetermined Problems

Diagnosing Problems

Use the following procedure as a guide for computer problems.



Important

The diagnostic tests are intended to test only Gateway products. Non-Gateway products, prototype cards, or modified options can give false errors and invalid system responses.

- 1 Obtain the failing symptoms in as much detail as possible.
- 2 Verify the symptoms by attempting to re-create the failure by running the diagnostic test or by repeating the same operation.
- 3 Use the following table with the verified symptom to determine which page to go to.

Symptoms (Verified)	Go To
Power failure. (The power indicator does not go on or stay on.)	"Power System Check" on page xxvi.
POST does not complete. No beep or error codes are indicated.	<ul style="list-style-type: none"> ▪ "Power-On Self-Test (POST) Error Message" on page xxviii. ▪ "Undetermined Problems" on page xli.
POST detects an error and displayed messages on screen.	"Index of Error Messages" on page xxviii.
Other symptoms (LCD display problems or others).	"Power-On Self-Test (POST) Error Message" on page xxviii.
Symptoms cannot be re-created (intermittent problems).	<ul style="list-style-type: none"> ▪ Use the customer-reported symptoms and go to "Power-On Self-Test (POST) Error Message" on page xxviii. ▪ "Intermittent Problems" on page xli. ▪ "Undetermined Problems" on page xli.

System Check Procedures

External Diskette Drive Check

Do the following to isolate the problem to a controller, drive, or diskette is required.



Important

Make sure that the diskette does not have more than one label attached to it. Multiple labels can cause damage to the drive or cause the drive to fail.

- **Do the following to select the test device:**
- 1 Boot from the diagnostics diskette and start the diagnostics program.
 - 2 See if FDD Test is passed as the program runs to FDD Test.

- 3 Follow the instructions in the message window.
If an error occurs with the internal diskette drive, reconnect the diskette on the system board.
If the error still remains:
- 4 Reconnect the external diskette drive/DVD-ROM module.
- 5 Replace the external diskette drive/CD-ROM module.
- 6 Replace the main board.

External CD-ROM Drive Check

Do the following to isolate the problem to a controller, drive, or CD-ROM. Make sure that the CD-ROM doesn't have any label attached to it. The label can cause damage to the drive or can cause the drive to fail.

► **Do the following to select the test device:**

- 1 Boot from the diagnostics diskette and start the diagnostics program.
- 2 See if CD-ROM Test is passed when the program runs to CD-ROM Test.
- 3 Follow the instructions in the message window.
If an error occurs, reconnect the connector on the system board.
If the error still remains:
- 4 Reconnect the external diskette drive/CD-ROM module.
- 5 Replace the external diskette drive/CD-ROM module.
- 6 Replace the main board.

Keyboard or Auxiliary Input Device Check

Remove the external keyboard if the internal keyboard is to be tested.

If the internal keyboard does not work or an unexpected character appears, make sure that the flexible cable extending from the keyboard is correctly seated in the connector on the system board.

If the keyboard cable is connected correctly, run the Keyboard Test.

If the tests detect a keyboard problem, do the following one at a time to correct the problem. Do not replace a non-defective FRU:

- 1 Reconnect the keyboard cable to the system board.
- 2 Replace the keyboard.
- 3 Replace the system board.

The following auxiliary input devices are supported by this computer:

- Numeric keypad
- External keyboard

If any of these devices do not work, reconnect the cable connector and repeat the failing operation.

Memory Check

Memory errors might stop system operations, show error messages on the screen, or hang the system.

► **To test the memory:**

- 1 Boot from the diagnostics diskette and start the diagnostics program. (please refer to main board)
- 2 Go to the diagnostic memory in the test items.
- 3 Press F2 in the test items.
- 4 Follow the instructions in the message window.



Important

Make sure that the DIMM is fully installed into the connector. A loose connection can cause an error.

Power System Check

► **To verify the symptom of the problem, power on the computer using each of the following power sources:**

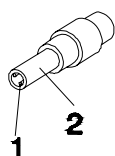
- Remove the battery pack.
- Connect the power adapter and check that power is supplied.
- Disconnect the power adapter and install the charged battery pack; then check that power is supplied by the battery pack.

If you suspect a power problem, see the appropriate power supply check in the following list:

- [“Check the Power Adapter” on page xxvi.](#)
- [“Check the Battery Pack” on page xxvii.](#)

Check the Power Adapter

Unplug the power adapter cable from the notebook and measure the output voltage at the plug of the power. See the following figure.



Pin 1: +19 to +20.5V
Pin 2: 0V, Ground

- If the voltage is not correct, replace the power adapter.
- If the voltage is within the range, do the following:
 - Replace the system board.
 - If the problem is not corrected, see [“Undetermined Problems” on page xli.](#)
 - If the voltage is not correct, go to see [“Check the Battery Pack” on page xxvii.](#)
 - If the power-on indicator does not light up, check the power adapter’s power cord for correct continuity and installation.

- If the operational charge does not work, see [“Check the Battery Pack” on page xxvii](#).



Important

An audible noise from the power adapter does not always indicate a defect.

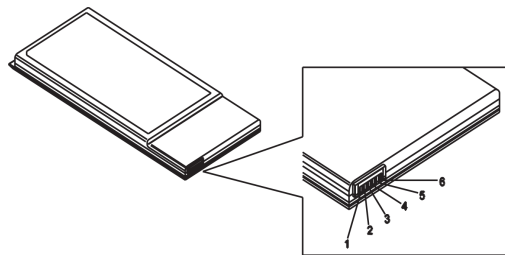
Check the Battery Pack

► **To check the battery pack using software:**

- 1 Check out the Power Management in control panel.
- 2 In Power Meter, confirm that if the parameters shown in the screen for Current Power Source and Total Battery Power Remaining are correct.
- 3 Repeat the steps 1 and 2, for both battery and adapter. This helps you identify first the problem is on recharging or discharging.

► **To check the battery pack using hardware:**

- 1 Power off the computer.
- 2 Remove the battery pack and measure the voltage between battery terminals 1 (+) and 6 (ground). See the following figure.



- 3 If the voltage is still less than 7.5 Vdc after recharging, replace the battery.

To check the battery charge operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.

If the battery status indicator does not light up, remove the battery pack and let it return to room temperature. Re-install the battery pack.

If the charge indicator still does not light up, replace the battery pack. If the charge indicator still does not light up, replace the DC/DC charger board.

Touchpad Check

If the touchpad doesn't work, do the following actions one at a time to correct the problem. Do not replace a non-defective FRU.

► **To check the touchpad:**

- 1 Reconnect the touchpad cables.
- 2 Replace the touchpad.
- 3 Replace the system board.

After you use the touchpad, the pointer drifts on the screen for a short time. This self-acting pointer movement can occur when a slight, steady pressure is applied to the touchpad pointer. This symptom is not a hardware problem. No service actions are necessary if the pointer movement stops in a short period of time.

Power-On Self-Test (POST) Error Message

The POST error message index lists the error message and their possible causes. The most likely cause is listed first.



Important

Perform the FRU replacement or actions in the sequence shown in the FRU/Action column. If the FRU replacement does not solve the problem, put the original part back in the computer. Do not replace a non-defective FRU.

This index can also help you determine the next possible FRU to be replaced when servicing a computer.

If the symptom is not listed, see [“Undetermined Problems” on page xli](#).

The following lists the error messages that the BIOS displays on the screen and the error symptoms classified by function.



Important

Most of the error messages occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured.



Important

If the system fails after you make changes in the BIOS Setup Utility menus, reset the computer, enter Setup and install Setup defaults or correct the error.

Index of Error Messages

Error Code List

Error Codes	Error Messages
006	Equipment Configuration Error Causes: 1. CPU BIOS Update Code Mismatch 2. IDE Primary Channel Master Drive Error (The causes will be shown before “Equipment Configuration Error.”)
010	Memory Error at xxxx:xxxx:xxxxh (R:xxxxh, W:xxxxh)
070	Real Time Clock Error
071	CMOS Battery Bad
072	CMOS Checksum Error

Error Codes	Error Messages
110	System disabled. Incorrect password is specified.
<No error code>	Battery critical LOW. In this situation BIOS will issue 4 short beeps, then shuts the system down. No message will show.
<No error code>	Thermal critical HIGH. In this situation BIOS shuts the system down. No message will show.

Error Message List

Error Messages	FRU/Action Sequence
Failure Fixed Disk	<ul style="list-style-type: none"> ▪ Reconnect the hard disk drive connector. ▪ Run "Load Default Settings" using the BIOS Setup Utility. ▪ Test or replace the hard disk drive. ▪ Test or replace the system board.
Stuck Key	See "Keyboard or Auxiliary Input Device Check" on page xxv.
Keyboard error	See "Keyboard or Auxiliary Input Device Check" on page xxv.
Keyboard Controller Failed	See "Keyboard or Auxiliary Input Device Check" on page xxv.
Keyboard locked - Unlock key switch	<ul style="list-style-type: none"> ▪ Unlock the external keyboard.
Monitor type does not match CMOS - Run Setup	<ul style="list-style-type: none"> ▪ Run "Load Default Settings" using the BIOS Setup Utility.
Shadow RAM Failed at offset: nnnn	<ul style="list-style-type: none"> ▪ Test or replace the BIOS ROM. ▪ Test or replace the system board.
System RAM Failed at offset: nnnn	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the system board.
Extended RAM Failed at offset: nnnn	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the system board.
System battery is dead - Replace and run Setup	<ul style="list-style-type: none"> ▪ Test or replace the RTC battery, run the BIOS Setup Utility to reconfigure system time, then reboot the system.
System CMOS checksum bad - Default configuration used	<ul style="list-style-type: none"> ▪ Test or replace the RTC battery, run the BIOS Setup Utility to reconfigure system time, then reboot the system.
System timer error	<ul style="list-style-type: none"> ▪ Test or replace the RTC battery, run the BIOS Setup Utility to reconfigure system time, then reboot the system. ▪ Test or replace the system board.
Real time clock error	<ul style="list-style-type: none"> ▪ Test or replace the RTC battery, run the BIOS Setup Utility to reconfigure system time, then reboot the system. ▪ Test or replace the system board.

CHAPTER 4: Troubleshooting

Error Messages	FRU/Action Sequence
Previous boot incomplete - Default configuration used	<ul style="list-style-type: none"> ▪ Run "Load Default Settings" using the BIOS Setup Utility, then reboot the notebook. ▪ Test or replace the RTC battery. ▪ Test or replace the system board.
Memory size found by POST differed from CMOS	<ul style="list-style-type: none"> ▪ Run "Load Default Settings" using the BIOS Setup Utility. ▪ Test or replace the DIMM. ▪ Test or replace the system board.
Diskette drive A error	<ul style="list-style-type: none"> ▪ Make sure that the drive is defined with the proper diskette type in the BIOS Setup Utility. ▪ "External Diskette Drive Check" on page xxiv.
Incorrect Drive A type - run SETUP	<ul style="list-style-type: none"> ▪ Make sure that the drive is defined with the proper diskette type in the BIOS Setup Utility.
System cache error - Cache disabled	<ul style="list-style-type: none"> ▪ Test or replace the system board.
CPU ID:	<ul style="list-style-type: none"> ▪ Test or replace the system board.
DMA Test Failed	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the system board.
Software NMI Failed	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the system board.
Fail-Safe Timer NMI Failed	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the system board.
Device Address Conflict	<ul style="list-style-type: none"> ▪ Run "Load Setup Defaults" using the BIOS Setup Utility, then reboot the notebook. ▪ Test or replace the CMOS battery, run the BIOS Setup Utility to reconfigure system time, then reboot the system. ▪ Test or replace the system board.
Allocation Error for device	<ul style="list-style-type: none"> ▪ Run "Load Default Settings" using the BIOS Setup Utility. ▪ Test or replace the RTC battery. ▪ Test or replace the system board.
Failing Bits: nnnn	<ul style="list-style-type: none"> ▪ Test or replace the DIMM. ▪ Test or replace the BIOS ROM. ▪ Test or replace the system board.
Fixed Disk n	None
Invalid System Configuration Data	<ul style="list-style-type: none"> ▪ Test or replace the BIOS ROM. ▪ Test or replace the system board.
I/O device IRQ conflict	<ul style="list-style-type: none"> ▪ Run "Load Default Settings" using the BIOS Setup Utility. ▪ Test or replace the RTC battery. ▪ Test or replace the system board.
Operating system not found	<ul style="list-style-type: none"> ▪ Enter Setup and see if fixed disk and drive A are properly identified. ▪ Test or replace the diskette drive. ▪ Test or replace the hard disk drive. ▪ Test or replace the system board.

No-beep Error Message List

No-beep Error Messages	FRU/Action in Sequence
No beep, power-on indicator turns off and LCD is blank.	<ul style="list-style-type: none"> ▪ Test the power source (battery pack and power adapter). See “Power System Check” on page xxvi. ▪ Make sure that every connector is connected tightly and correctly. ▪ Reconnect the DIMM. ▪ Test or replace the LED board. ▪ Test or replace the system board.
No beep, power-on indicator turns on and LCD is blank.	<ul style="list-style-type: none"> ▪ Test the power source (battery pack and power adapter). See “Power System Check” on page xxvi. ▪ Reconnect the LCD connector ▪ Check the hard disk drive. ▪ Check the LCD inverter ID. ▪ Check the LCD cable. ▪ Test or replace the LCD inverter. ▪ Test or replace the LCD. ▪ Test or replace the system board.
No beep, power-on indicator turns on and LCD is blank. But you can see POST on an external CRT.	<ul style="list-style-type: none"> ▪ Reconnect the LCD connectors. ▪ Check the LCD inverter ID. ▪ Check the LCD cable. ▪ Test or replace the LCD inverter. ▪ Test or replace the LCD. ▪ Test or replace the system board.
No beep, power-on indicator turns on and a blinking cursor shown on LCD during POST.	<ul style="list-style-type: none"> ▪ Make sure that every connector is connected tightly and correctly. ▪ Test or replace the system board.
No beep during POST but system runs correctly.	<ul style="list-style-type: none"> ▪ Test or replace the speaker. ▪ Test or replace the system board.

InsydeH2O BIOS Beep Codes

Code	Beeps	POST Routine Description
02h		Verify Real Mode
03h		Disable Non-Maskable Interrupt (NMI)
04h		Get CPU type
06h		Initialize system hardware
08h		Initialize chipset with initial POST values
09h		Set IN POST flag
0Ah		Initialize CPU registers
0Bh		Enable CPU cache
0Ch		Initialize caches to initial POST values
0Eh		Initialize I/O component
0Fh		Initialize the local bus IDE
10h		Initialize Power Management
11h		Load alternate registers with initial POST values
12h		Restore CPU control word during warm boot
13h		Initialize PCI Bus Mastering devices
14h		Initialize keyboard controller
16h	1-2-2-3	BIOS ROM checksum
17h		Initialize cache before memory autosize
18h		8254 timer initialization
1Ah		8237 DMA controller initialization
1Ch		Reset Programmable Interrupt Controller
20h	1-3-1-1	Test DRAM refresh
22h	1-3-1-3	Test 8742 Keyboard Controller
24h		Set ES segment register to 4 GB
26h		Enable A20 line
28h		Autosize DRAM
29h		Initialize POST Memory Manager
2Ah		Clear 215 KB base RAM
2Ch	1-3-4-1	RAM failure on address line xxxx

Code	Beeps	POST Routine Description
2Eh	1-3-4-3	RAM failure on data bits xxxx of low byte of memory bus
2Fh		Enable cache before system BIOS shadow
30h	1-4-1-1	RAM failure on data bits xxxx of high byte of memory bus
32h		Test CPU bus-clock frequency
33h		Initialize Phoenix Dispatch Manager
36h		Warm start shut down
38h		Shadow system BIOS ROM
3Ah		Autosize cache
3Ch		Advanced configuration of chipset registers
3Dh		Load alternate registers with CMOS values
42h		Initialize interrupt vectors
45h		POST device initialization
46h	2-1-2-3	Check ROM copyright notice
48h		Check video configuration against CMOS
49h		Initialize PCI bus and devices
4Ah		Initialize all video adapters in system
4Bh		QuietBoot start (optional)
4Ch		Shadow video BIOS ROM
4Eh		Display BIOS copyright notice
50h		Display CPU type and speed
51h		Initialize EISA board
52h		Test keyboard
54h		Set key click if enabled
58h	2-2-3-1	Test for unexpected interrupts
59h		Initialize POST display service
5Ah		Display prompt "Press F2 to enter SETUP"
5Bh		Disable CPU cache
5Ch		Test RAM between 512 and 640 KB
60h		Test extended memory
62h		Test extended memory address lines
64h		Jump to User Patch1

CHAPTER 4: Troubleshooting

Code	Beeps	POST Routine Description
66h		Configure advanced cache registers
67h		Initialize Multi Processor APIC
68h		Enable external and CPU caches
69h		Setup System Management Mode (SMM) area
6Ah		Display external L2 cache size
6Bh		Load custom defaults (optional)
6Ch		Display shadow-area message
6Eh		Display possible high address for UMB recovery
70h		Display error messages
72h		Check for configuration errors
76h		Check for keyboard errors
7Ch		Set up hardware interrupt vectors
7Eh		Initialize coprocessor if present
80h		Disable onboard Super I/O ports and IRQs
81h		Late POST device initialization
82h		Detect and install external RS232 ports
83h		Configure non-MCD IDE controllers
84h		Detect and install external parallel ports
85h		Initialize PC-compatible PnP ISA devices
86h		Re-initialize onboard I/O ports
87h		Configure Motherboard Configurable Devices (optional)
88h		Initialize BIOS Area
89h		Enable Non-Maskable Interrupts (NMIs)
8Ah		Initialize Extended BIOS Data Area
8Bh		Test and initialize PS/2 mouse
8Ch		Initialize floppy controller
8Fh		Determine number of ATA drives (optional)
90h		Initialize hard-disk controllers
91h		Initialize local-bus hard-disk controllers
92h		Jump to UserPatch2
93h		Build MPTABLE for multi-processor boards

Code	Beeps	POST Routine Description
95h		Install CD ROM for boot
96h		Clear huge ES segment register
97h		Fixup Multi Processor table
98h	1-2	Search for option ROMs. One long, two short beeps on checksum failure.
99h		Check for SMART drive (optional)
9Ah		Shadow option ROMs
9Ch		Set up Power Management
9Dh		Initialize security engine (optional)
9Eh		Enable hardware interrupts
9Fh		Determine number of ATA and SCSI drives
A0h		Set time of day
A2h		Check key lock
A4h		Initialize Typematic rate
A8h		Erase F2 prompt
AAh		Scan for F2 key stroke
ACh		Enter SETUP
A Eh		Clear Boot flag
B0h		Check for errors
B2h		POST done-prepare to boot operating system
B4h	1	One short beep before boot
B5h		Terminate QuietBoot (optional)
B6h		Check password (optional)
B9h		Prepare Boot
BAh		Initialize DMI parameters
BBh		Initialize PnP Option ROMs
BCh		Clear parity checkers
BDh		Display MultiBoot menu
BEh		Clear screen (optional)
BFh		Check virus and backup reminders
C0h		Try to boot with INT 19
C1h		Initialize POST Error Manager (PEM)

CHAPTER 4: Troubleshooting

Code	Beeps	POST Routine Description
C2h		Initialize error logging
C3h		Initialize error display function
C4h		Initialize system error handler
C5h		PnPnd dual CMOS (optional)
C6h		Initialize notebook docking (optional)
C7h		Initialize notebook docking late
C8h		Force check (optional)
C9h		Extended checksum (optional)
D2h		Unknown interrupt

Code	Beeps	POST Routine Description
E0h		Initialize the chipset
E1h		Initialize the bridge
E2h		Initialize the CPU
E3h		Initialize the system timer
E4h		Initialize system I/O
E5h		Check force recovery boot
E6h		Checksum BIOS ROM
E7h		Go to BIOS
E8h		Set Huge Segment
E9h		Initialize Multi Processor
EAh		Initialize OEM special code
EBh		Initialize PIC and DMA
ECh		Initialize Memory type
EDh		Initialize Memory size
EEh		Shadow Boot Block
EFh		System memory test
F0h		Initialize interrupt vectors
F1h		Initialize Run Time Clock
F2h		Initialize video
F3h		Initialize System Management Mode

Code	Beeps	POST Routine Description
F4h	1	Output one beep before boot
F5h		Boot to Mini DOS
F6h		Clear Huge Segment
F7h		Boot to Full DOS

Index of Symptom-to-FRU Error Message

LCD-Related Symptoms

Symptom / Error	Action in Sequence
<ul style="list-style-type: none"> ▪ The LCD backlight doesn't work. ▪ The LCD is too dark. ▪ The LCD brightness cannot be adjusted. ▪ The LCD contrast cannot be adjusted. 	<ul style="list-style-type: none"> ▪ Run BOIS Utility to execute "Load Setup Default Settings", then reboot the notebook. ▪ Reconnect the LCD connectors. ▪ Test or replace the keyboard (if contrast and brightness function key doesn't work). ▪ Check the LCD inverter ID. ▪ Test or replace the LCD cable. ▪ Test or replace the LCD inverter. ▪ Test or replace the LCD. ▪ Test or replace the system board.
<ul style="list-style-type: none"> ▪ The LCD screen is unreadable. ▪ Missing pels in characters. ▪ The screen appears abnormal. ▪ The wrong color is displayed. 	<ul style="list-style-type: none"> ▪ Reconnect the LCD connector. ▪ Check the LCD inverter ID. ▪ Test or replace the LCD cable. ▪ Test or replace the LCD inverter. ▪ Test or replace the LCD. ▪ Test or replace the system board.
<p>The LCD has extra horizontal or vertical lines displayed.</p>	<ul style="list-style-type: none"> ▪ Check the LCD inverter ID. ▪ Test or replace the LCD inverter. ▪ Test or replace the LCD cable. ▪ Test or replace the LCD. ▪ Test or replace the system board.

Indicator-Related Symptoms

Symptom / Error	Action in Sequence
Indicator incorrectly remains off or on, but system runs correctly.	<ul style="list-style-type: none"> ▪ Reconnect the inverter board. ▪ Test or replace the inverter board. ▪ Test or replace the system board.

Power-Related Symptoms

Symptom / Error	Action in Sequence
Power shuts down during operation.	<ul style="list-style-type: none"> ▪ Test the power source (battery pack and power adapter). See "Power System Check" on page xxvi. ▪ Test or replace the battery pack. ▪ Test or replace the power adapter. ▪ Test or replace the hard drive & battery connection board. ▪ Test or replace the system board.
The notebook doesn't power-on.	<ul style="list-style-type: none"> ▪ Test the power source (battery pack and power adapter). See "Power System Check" on page xxvi. ▪ Test or replace the battery pack. ▪ Test or replace the power adapter. ▪ Test or replace the hard drive & battery connection board. ▪ Test or replace the system board.
The system doesn't power-off.	<ul style="list-style-type: none"> ▪ Test the power source (battery pack and power adapter). See "Power System Check" on page xxvi. ▪ Hold and press the power switch for more than 4 seconds. ▪ Test or replace the system board.
The battery can't be charged.	<ul style="list-style-type: none"> ▪ See "Check the Battery Pack" on page xxvii. ▪ Test or replace the battery pack. ▪ Test or replace the system board.

PCMCIA-Related Symptoms

Symptom / Error	Action in Sequence
The system cannot detect the PC Card (PCMCIA).	<ul style="list-style-type: none"> ▪ PCMCIA slot assembly. ▪ Test or replace the system board.
PCMCIA slot pin is damaged.	<ul style="list-style-type: none"> ▪ PCMCIA slot assembly.

Memory-Related Symptoms

Symptom / Error	Action in Sequence
Memory count (size) appears different from actual size.	<ul style="list-style-type: none"> ▪ Enter BIOS Setup Utility to execute "Load Default Settings", then reboot system. ▪ Test or replace the DIMM. ▪ Test or replace the system board.

Speaker-Related Symptoms

Symptom / Error	Action in Sequence
In Windows, multimedia programs, no sound comes from the computer.	<ul style="list-style-type: none"> ▪ Reinstall the audio driver. ▪ Test or replace the speakers. ▪ Test or replace the system board.
The internal speakers make noise or emit no sound.	<ul style="list-style-type: none"> ▪ Test or replace the speakers. ▪ Test or replace the system board.

Power Management-Related Symptoms

Symptom / Error	Action in Sequence
The system will not enter hibernation.	<ul style="list-style-type: none"> ▪ Test or replace the keyboard (if control is from the keyboard). ▪ Test or replace the hard disk drive. ▪ Test or replace the system board.
The system doesn't enter hibernation mode and emits 4 short beeps every minute.	<ul style="list-style-type: none"> ▪ Press Fn+O and see if the computer enters hibernation mode. ▪ Test or replace the touchpad. ▪ Test or replace the keyboard. ▪ Check the hard disk connection to the system board. ▪ Test or replace the hard disk drive. ▪ Test or replace the system board.
The system doesn't enter standby mode after closing the LCD.	<ul style="list-style-type: none"> ▪ Test or replace the LCD cover switch. ▪ Test or replace the system board.
The system doesn't resume from hibernation mode.	<ul style="list-style-type: none"> ▪ Check the hard disk connection to the system board. ▪ Test or replace the hard disk drive. ▪ Test or replace the system board.
The system doesn't resume from standby mode after opening the LCD.	<ul style="list-style-type: none"> ▪ Test or replace the LCD cover switch. ▪ Test or replace the system board.
The battery fuel gauge in Windows doesn't go higher than 90%.	<ul style="list-style-type: none"> ▪ Remove the battery pack and let it cool for 2 hours. ▪ Refresh the battery (continue use battery until power off, then charge the battery). ▪ Test or replace the battery pack. ▪ Test or replace the system board.
The system hangs intermittently.	<ul style="list-style-type: none"> ▪ Reconnect the hard disk/CD-ROM drives. ▪ Check the hard disk connection to the system board. ▪ Test or replace the system board.

Peripheral-Related Symptoms

Symptom / Error	Action in Sequence
System configuration does not match the installed devices.	<ul style="list-style-type: none"> ▪ Enter BIOS Setup Utility to execute "Load Default Settings", then reboot the system. ▪ Reconnect the hard disk drive/CD-ROM/diskette drives.
The external display does not work correctly.	<ul style="list-style-type: none"> ▪ Press Fn+F5 repeatedly to switch between LCD/CRT, and both displays. ▪ Test or replace the system board.

CHAPTER 4: Troubleshooting

Symptom / Error	Action in Sequence
USB does not work correctly.	<ul style="list-style-type: none">▪ Test or replace the system board.
Printer problems.	<ul style="list-style-type: none">▪ Ensure the “Parallel Port” in the “Onboard Devices Configuration” of BIOS Setup Utility is set to Enabled.▪ Onboard Devices Configuration.▪ Run the printer self-test.▪ Reinstall the printer driver.▪ Test or replace the printer cable.▪ Test or replace the printer.▪ Test or replace the system board.
Serial or parallel port device problems.	<ul style="list-style-type: none">▪ Ensure the “Serial Port” in the “Devices Configuration” of BIOS Setup Utility is set to Enabled.▪ Reinstall the device driver.▪ Test or replace the device cable.▪ Test or replace the device.▪ Test or replace the system board.

Keyboard/Touchpad-Related Symptoms

Symptom / Error	Action in Sequence
The keyboard (one or more keys) does not work.	<ul style="list-style-type: none">▪ Reconnect the keyboard cable.▪ Test or replace the keyboard.▪ Test or replace the system board.
The touchpad does not work.	<ul style="list-style-type: none">▪ Reconnect the touchpad cable.▪ Test or replace the touchpad board.▪ Test or replace the system board.

Modem-Related Symptoms

Symptom / Error	Action in Sequence
The internal modem does not work correctly.	<ul style="list-style-type: none">▪ Test the modem phone port.▪ Test or replace the modem combo card.▪ Test or replace the system board.



Important

If you cannot find a symptom or an error in this list and the problem remains, see [“Undetermined Problems” on page xli](#).

Intermittent Problems

Intermittent system hang problems can be caused by a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. FRU replacement should be considered only when a recurring problem exists.

► **When analyzing an intermittent problem, do the following:**

- 1 Run the advanced diagnostic test for the system board in loop mode at least 10 times.
 - If any error is detected, replace the FRU.
 - If no error is detected, do not replace any FRU.
- 2 Rerun the test to verify that there are no more errors.

Undetermined Problems

The diagnostic problems does not identify which adapter or device failed, which installed devices are incorrect, whether a short circuit is suspected, or whether the system is inoperative.

Follow these procedures to isolate the failing FRU (do not isolate a non-defective FRU).



Important

Verify that all attached devices are supported by the computer.



Important

Verify that the power supply being used at the time of the failure is operating correctly. (See "[Power System Check](#)" on page xxvi.)

► **To isolate a failing FRU:**

- 1 Power-off the computer.
- 2 Visually check them for damage. If any problems are found, replace the FRU.
- 3 Remove or disconnect all of the following devices:
 - Non-Gateway devices
 - Printer, mouse, and other external devices
 - Battery pack
 - Hard disk drive(s)
 - DIMM
 - CD-ROM/Diskette drive Module
 - PC Cards
- 4 Power-on the computer.
- 5 Determine if the problem has changed.

CHAPTER 4: Troubleshooting

- If the problem does not recur, reconnect the removed devices one at a time until you find the failing FRU.
- If the problem remains, replace the following FRUs one at a time:
 - System board
 - LCD assembly



Important

Do not replace a non-defective FRU.

CHAPTER 6

FRU (Field Replaceable Unit) List

- [Introduction](#)
- [Exploded Diagram](#)
- [Gateway EC58 FRU List](#)

Introduction

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of Gateway EC58. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).

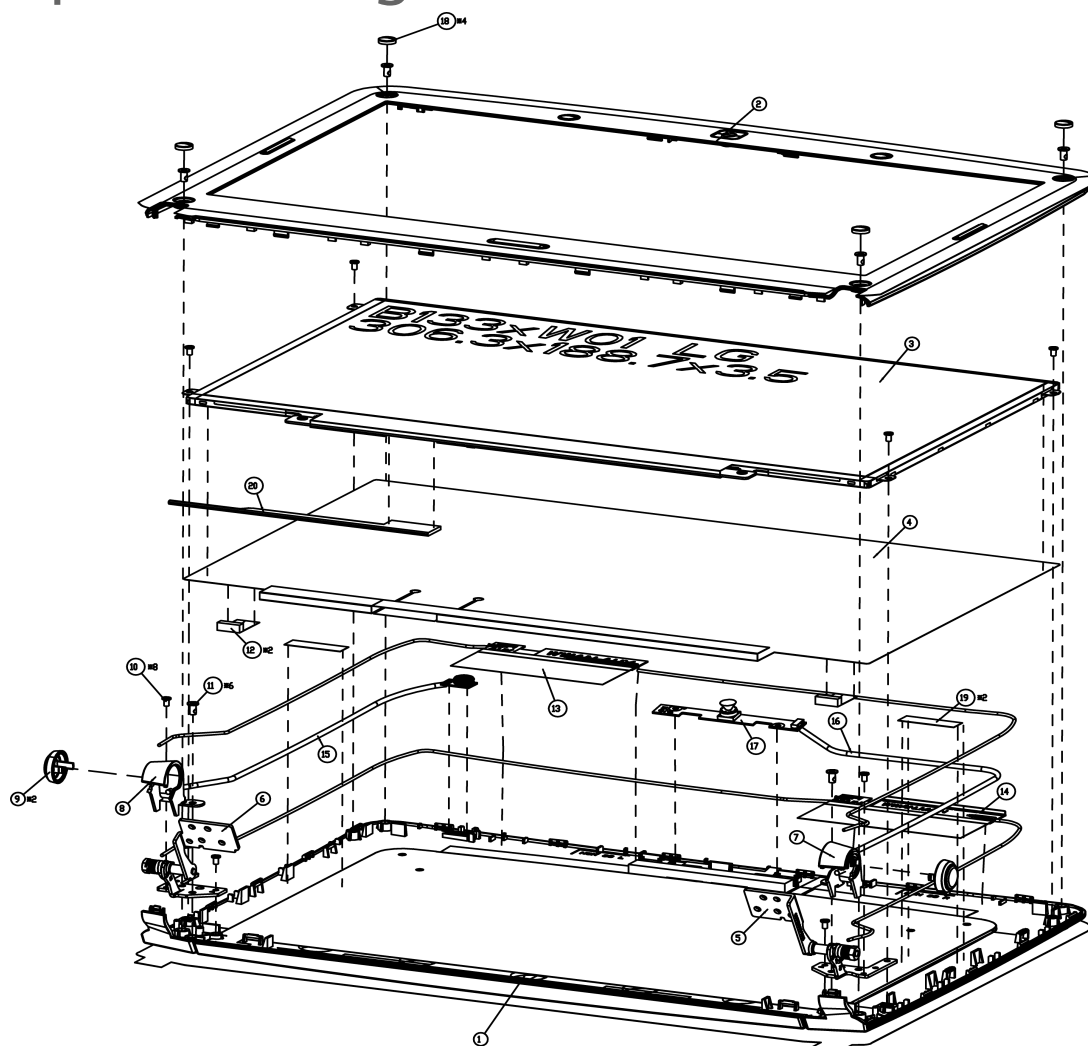
Please note that **WHEN ORDERING FRU PARTS**, you should check the most up-to-date information available on your regional web or channel. For whatever reasons a part number change is made, it will not be noted on the printed Service Guide. For **GATEWAY AUTHORIZED SERVICE PROVIDERS**, your Gateway office may have a **DIFFERENT** part number code from those given in the FRU list of this printed Service Guide. You **MUST** use the local FRU list provided by your regional Gateway office to order FRU parts for repair and service of customer machines.



Important

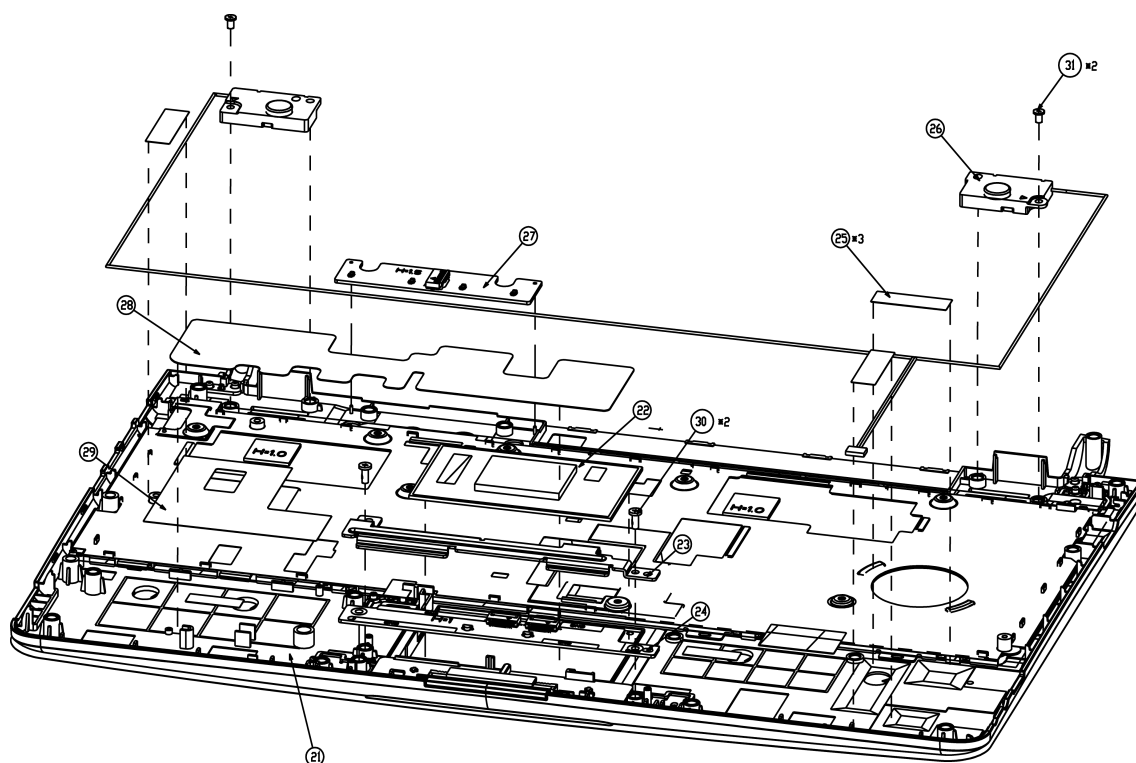
To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Gateway office on how to return it.

Exploded Diagram

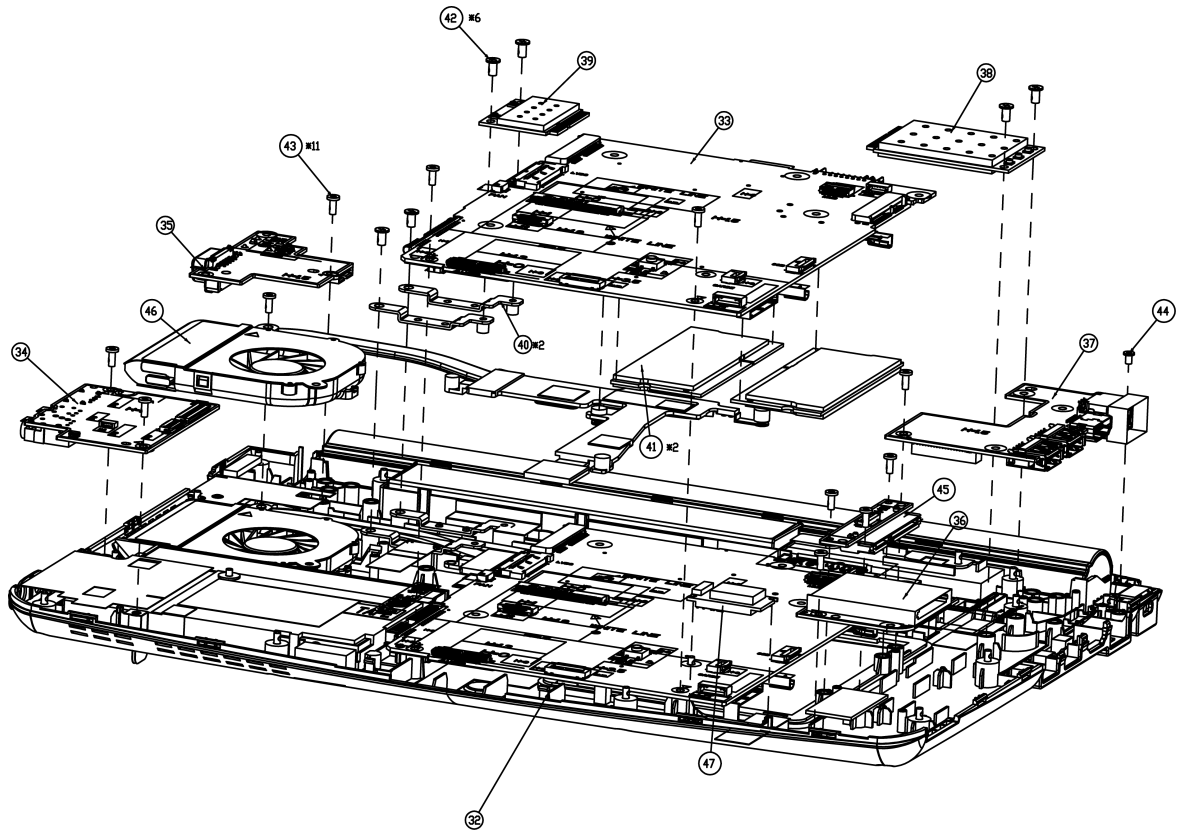


20	6017B0216301	SJM31_LVDS_CABLE	1
19	6054A0076201	TAPE_250x80x1T_3M8915	2
18	6054B0623101	SJM31_DISP_BEZEL_RUBBER_UP	4
17	6047B0012101	Suyin 1.0Mega NB Module Model No.CN1014-S36D-DV05-R.	1
16	6017B0216201	SJM31_CAMERA_CABLE	1
15	6039B0033401	SJM31_DISP_MIC_CABLE	1
14	6036B0057001	ANTENNA,DUAL,RIGHT,510/400mm,1.13mm	1
13	6036B0057101	ANTENNA,DUAL,LEFT,500/560mm,1.13mm	1
12	6054B0676901	SJM31_DISP_GASKET_HINGE	2
11	6052B0005901	SCREW,I,M2.5,4.5mm,M,4.5mm,0.5mm,NL,PATCH	6
10	6052B0156101	SCREW,I,M2.0,3.0mm,MACH,4.0mm,0.4mm,CROSS,BK,PATCH	8
9	1510B0730901	SJM31_DISP_HINGE_CAP_SET	2
8	6051B0443101	SJM31_DISP_HINGE_COVER_L	1
7	6051B0443201	SJM31_DISP_HINGE_COVER_R	1
6	6055B0004101	SJM31_DISP_HINGE_L	1
5	6055B0004001	SJM31_DISP_HINGE_R	1
4	6053B0539701	SJM31_DISP_PANEL_AL_FOIL	1
3	6024B0057201	LED LCD AUD 13.3" WXGA Glare B133XW01 V2 LF 220nit 8ms 500:1	1
2	1510B0729401	ASSEMBLY,COVER,BEZEL,DISPLAY,OFFLINE	1
1	1510B0729501	ASSEMBLY,COVER,REAR,DISPLAY,OFFLINE	1
NO	PART NO	PART EXPRESSION	QTY_01

CHAPTER 6: FRU (Field Replaceable Unit) List

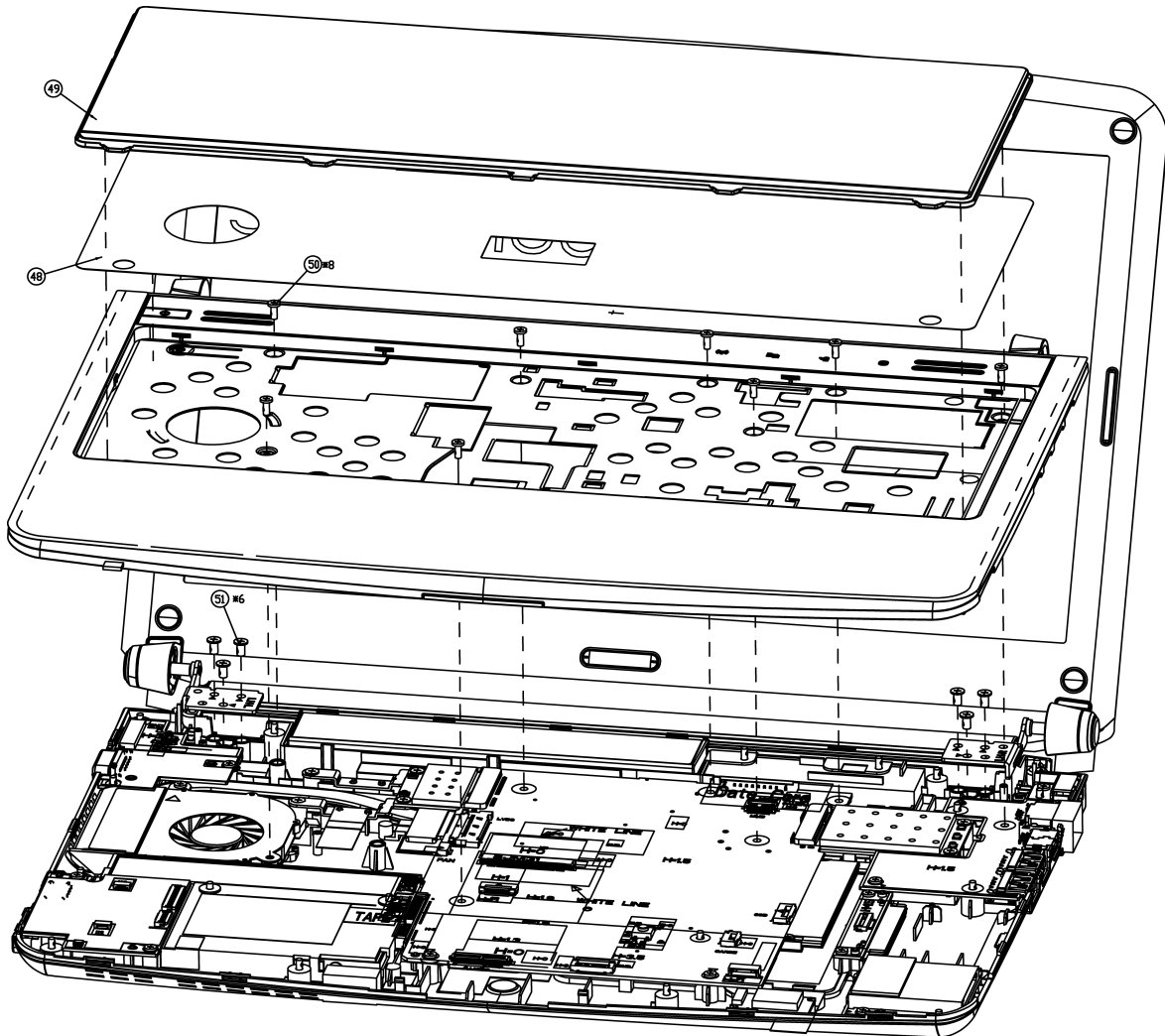


31	6052A0035101	SCREW,I,M2,3mm,M,4.5mm,0.8mm,BK,PATCH	2
30	6052B0151501	SCREW,I,M2.0,5.0mm,MACH,4.5mm,0.8mm,CROSS,BNI,PATCH	2
29	6053B0552301	SJM31_TDP_AL_FOIL_THERMAL	1
28	6054B0683601	SJM31_TDP_GRAPHITE_PLATE	1
27	1397B0056402	SW SENSOR BOARD	1
26	6039B0033601	SPEAKER.SET,4OHM,1.5W,26.6X17.4X4.4mm,265x600mm	1
25	6054A0076201	TAPE_250x80x1T_3M8915	3
24	1397B0058801	GLIDE PAD BOARD	1
23	6053B0512401	SJM31_TDP_THPAD_BRKT	1
22	6034B0009101	SJM31_TDP_TOUCHPAD	1
21	1510B0726701	ASSEMBLY,CASE,TOP,OFFLINE	1
NO	PART NO	PART EXPRESSION	QTY_01

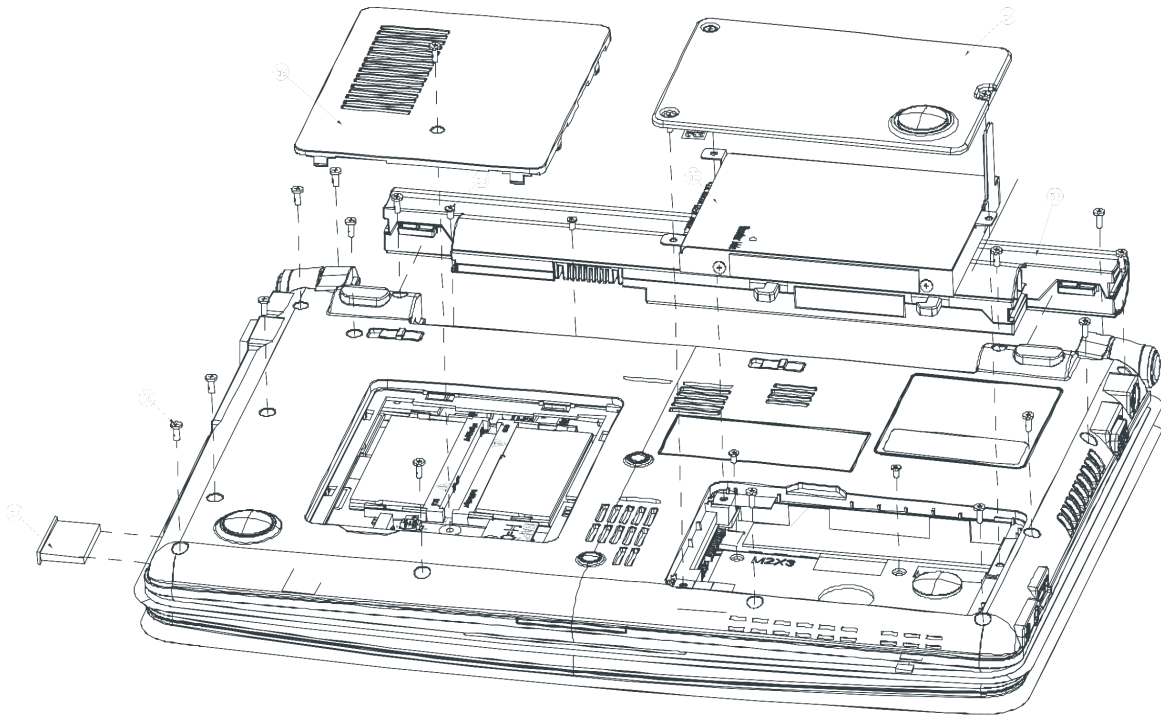


47	6042B0112301	Foxconn Bluetooth T60H928.31 FOX_BRM_2.1	1
46	6043B0069001	SJM31_THERMAL_MODULE	1
45	1397B0060101	SJM31_SSD_BOARD	1
44	6052A0035101	SCREW,I,M2,3mm,M,4.5mm,0.8mm,BK,PATCH	1
43	6052B0151501	SCREW,I,M2.0,5.0mm,MACH,4.5mm,0.8mm,CROSS,BNI,PATCH	11
42	6052B0005901	SCREW,I,M2.5,4.5mm,M,4.5mm,0.5mm,NI,PATCH	6
41	6019B0643701	VRAM SAMSUNG Graphic DDRIII 800 1Gb K4W1G1646E-HC12 LF	2
40	6053B0517301	SJM31_SUP_BKT_MINIPCI_HALF	2
39	6042B0099301	Foxconn WLAN Atheros AR5B91 (FM)	1
38	6042B0111201	Option 3G GTM382E	1
37	1397B0061701	SJM31_USB_BOARD	1
36	1397B0060201	SJM31_CARD_READER_BOARD	1
35	1397B0058901	SJM31_VGA_BOARD	1
34	1397B0059001	SJM31_AUDIO_BOARD	1
33	1310A2275201	SJM31_PCB_MAIN	1
32	1510B0729201	ASSEMBLY,CASE,BOTTOM,OFFLINE	1
NO	PART NO	PART EXPRESSION	QTY_01

CHAPTER 6: FRU (Field Replaceable Unit) List

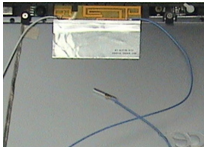
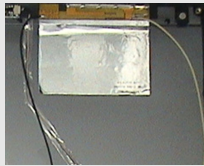






51	6052B0005901	SCREW,I,M2.5,4.5mm,M,4.5mm,0.5mm,NI,PATCH	6
50	6052B0151501	SCREW,I,M2.0,5.0mm,MACH,4.5mm,0.8mm,CROSS,BNI,PATCH	8
49	6037B0039601	SJM31_TOP_KEYBOARD_US INTERNATIONAL	1
48	6054B0687801	SJM31_TOP_NONWOVEN	1
NO	PART NO	PART EXPRESSION	QTY_01











58	1510B0729001	SJM31_RAM_DOOR_SET	1
57	6051B0223002	S11d XD card	1
56	6052B0151501	SCREW,I,M2,0,5.0mm,MACH,4.5mm,0.8mm,CROSS,BNI,PATCH	16
55	1510B0727101	SJM31_HDD_SET	1
54	1510B0729101	SJM31_HDD_COVER_SET	1
53	6052A0035101	SCREW,I,M2,3mm,M,4.5mm,0.8mm,BK,PATCH	4
52	6027B0064201	Battery PANASONIC Li-Ion 3S2P PANASONIC 6 cell 5800mAh	1
NO	PART NO	PART EXPRESSION	QTY_01








Gateway EC58 FRU List

Category	Part Name and Description	Gateway Part No.
ACCESORY		
	WIRELESS ANTENNA LEFT	50.WEK0N.007
	WIRELESS ANTENNA RIGHT	50.WEK0N.006
	WIRELESS ANTENNA RIGHT NON 3G	50.WEK0N.010
	WIRELESS ANTENNA LEFT NON 3G	50.WEK0N.011
ADAPTER		
	ADAPTER DELTA 65W 19V 1.7X5.5X11 YELLOW ADP-65JH DB A, LV5 LED LF	AP.06501.026
	ADAPTER LITE-ON 65W 19V 1.7X5.5X11 YELLOW PA-1650-22AC LV5 LED LF	AP.06503.024
	ADAPTER HIPRO 65W 19V 1.7X5.5X11 YELLOW HP-A0652R3B 1LF, LV5 LED LF	AP.0650A.012
	ADAPTER DELTA 65W 19V 1.7X5.5X11 YELLOW (ADP-65MH B A) LV5, LF LF	AP.06501.027
	ADAPTER LITE-ON 65W 19V 1.7X5.5X11 YELLOW (PA-1650-22AG), LV5 LF	AP.06503.026
	ADAPTER HIPRO 65W 19V 1.7X5.5X11 YELLOW (HP-A0653R3B 1LF), LV5 LF	AP.0650A.013






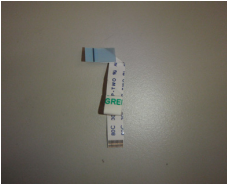
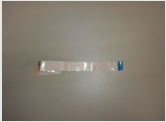


Category	Part Name and Description	Gateway Part No.
BATTERY		
	BATTERY PANASONIC LI-ION 3S2P PANASONIC 6 CELL 5800MAH MAIN COMMON W/ HALOGEN FREE	BT.00605.038
	BATTERY SANYO AS-2009D LI-ION 3S2P SANYO 6 CELL 5600MAH MAIN COMMON W/ HALOGEN FREE	BT.00603.080
	BATTERY SIMPLO AS-2009D LI-ION 3S2P SAMSUNG 6 CELL 5600MAH MAIN COMMON ID : AS09D70 W/ HALOGEN FREE	BT.00607.082
	BATTERY SANYO AS-2009D LI-ION 3S2P SANYO 6 CELL 5200MAH MAIN COMMON W/ HALOGEN FREE	BT.00603.079
	Battery SIMPLO AS-2009D Li-Ion 3S2P SAMSUNG 6 cell 5200mAh Main COMMON A Type AS09D7D	BT.00607.089
	Battery SIMPLO AS-2009D Li-Ion 3S2P LGC 6 cell 5200mAh Main COMMON C1 AS09D7C	BT.00607.090
	BATTERY SANYO AS-2009D LI-ION 3S2P SANYO 6 CELL 4400MAH MAIN COMMON ID: AS09D31 W/ HALOGEN FREE	BT.00603.082
	BATTERY SONY AS-2009D LI-ION 3S2P SONY 6 CELL 4400MAH MAIN COMMON ID : AS09D41 W/ HALOGEN FREE	BT.00604.039
	BATTERY PANASONIC AS-2009D LI-ION 3S2P PANASONIC 6 CELL 4400MAH MAIN COMMON ID: AS09D51 W/HALOGEN FREE	BT.00605.041
	BATTERY SIMPLO AS-2009D LI-ION 3S2P PANASONIC 6 CELL 4400MAH MAIN COMMON 2.2CG , ID: AS09D71 W/HALOGEN FREE	BT.00607.078
	BATTERY SIMPLO AS-2009D LI-ION 3S2P LGC 6 CELL 4400MAH MAIN COMMON 2.2S3 , ID: AS09D73 W/ HALOGEN FREE	BT.00607.079
	BATTERY SIMPLO AS-2009D LI-ION 3S2P SAMSUNG 6 CELL 4400MAH MAIN COMMON 2.2F , ID: AS09D75 W/HALOGEN FREE	BT.00607.080


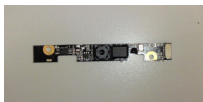




CHAPTER 6: FRU (Field Replaceable Unit) List

Category	Part Name and Description	Gateway Part No.
BOARD		
	LAN INTEL WLAN 512AN_HMWG SHIRLEY PEAK 5100 MM#895373	KI.SPH01.003
	LAN INTEL WLAN 512AG_HMWG SHIRLEY PEAK 5100 MM#897072	KI.SPH01.005
	Liteon Wireless LAN Atheros HB93 1x2 BGN (HM) WN6602AH	NI.23600.051
	Foxconn Wireless LAN Atheros HB93 1x2 BGN (HM)	NI.23600.046
	Foxconn Wirelss LAN Atheros HB95 1x1 BG (HM)	NI.23600.047
	OPTION 3G MODULE GTM382EL	LC.21300.007
	QUALCOMM 3G MODULE GOBI2000	LC.21300.011
	TOUCHPAD	56.PCR0N.001
	BLUETOOTH BOARD FOXCONN BCM2045 V2 T60H928.11	BT.21100.005
	BLUETOOTH BOARD Foxconn BRM 2046 BT.1 T60H928.33	BH.21100.004
	USB BOARD	55.WEK0N.001
	CARD READER BOARD	55.PCR0N.003
	AUDIO BOARD	55.WEK0N.002
	D-SUB&DC-IN BOARD	55.WEK0N.003
		
		
		



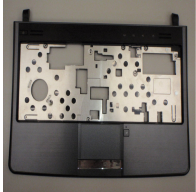
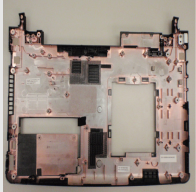


Category	Part Name and Description	Gateway Part No.
	TOUCHPAD BUTTON BOARD	55.WEK0N.004
	LED BOARD	55.PCR0N.001
	SSD TRANSFER BOARD	55.PCR0N.005
CABLE		
	POWER CORD 3PIN USA	27.AAMVN.001
	POWER CORD 3PIN EUR	27.AAMVN.002
	POWER CORD 3PIN SOUTH AFRICA	27.AAMVN.008
	POWER CORD 3PIN DENMARK	27.AAMVN.010
	POWER CORD ISRAEL	27.AAMVN.011
	POWER CORD 3PIN ITALIAN	27.AAMVN.009
	POWER CORD 3PIN UK	27.AAMVN.004
	POWER CORD 3PIN SWISS	27.AAMVN.006
	POWER CORD AUSTRALIA W/LABEL	27.AAMVN.003
	POWER CORD 3PIN CHINA	27.AAMVN.005
	POWER CORD SOUTH AFRICA (AIL)	27.AAMVN.007
	BLUETOOTH BOARD CABLE	50.PCR0N.010
	DC-IN CABLE 65W	50.WEK0N.001
	USB BOARD CABLE	50.WEK0N.002





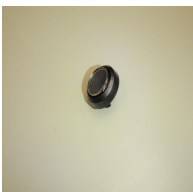

CHAPTER 6: FRU (Field Replaceable Unit) List

Category	Part Name and Description	Gateway Part No.
	D-SUB SIGNAL CABLE	50.WEK0N.003
	AUDIO BOARD CABLE	50.WEK0N.004
	AUDIO BOARD CABLE	50.WEK0N.005
	CARD READER BOARD CABLE	50.PCR0N.003
	SSD TRANSFER BOARD CABLE	50.PCR0N.005
	LED BOARD CABLE	50.PCR0N.001
	TOUCHPAD BUTTON BOARD CABLE	50.PCR0N.002
	TOUCHPAD CABLE	50.PCR0N.009
	LED LCD CABLE	50.WEK0N.008



Category	Part Name and Description	Gateway Part No.
	CCD CABLE	50.WEK0N.009
CAMERA		
	CCD 1.0M SUYIN CN1014-S36D-OV05-R LAVENDER_G	57.PCR0N.001
CASE / COVER / BRACKET ASSEMBLY		
	MINI PCI CARD BRACKET	33.WEK0N.001
	TOUCHPAD BUTTON BOARD BRACKET	33.WEK0N.002
	LED LENS	42.WEK0N.001
	HDD COVER	60.WEK0N.001


CHAPTER 6: FRU (Field Replaceable Unit) List

Category	Part Name and Description	Gateway Part No.
	DIMM COVER	60.WEK0N.002
	DUMMY CARD	42.PCR0N.003
	UPPER CASE GW	60.WEK0N.003
	LOWER CASE	60.WEK0N.005
	HDD CONNECTOR	20.PCR0N.001
	HDD BRACKET	33.WEK0N.003


Category	Part Name and Description	Gateway Part No.
	LCD COVER 13.3" GW	60.WEK0N.007
	LCD BEZEL 13.3" W/CCD HOLE	60.WEK0N.008
	LCD HINGE COVER RIGHT	60.WEK0N.009
	LCD HINGE COVER LEFT	60.WEK0N.010
	LCD HINGE CAP	60.WEK0N.011
	LCD HINGE LEFT	33.WEK0N.004

CHAPTER 6: FRU (Field Replaceable Unit) List


Category	Part Name and Description	Gateway Part No.
	LCD HINGE RIGHT	33.WEK0N.005
HDD / SSD		
	HDD SEAGATE 2.5" 5400RPM 160GB ST9160310AS CROCKETT SATA LF F/W:0303	KH.16001.034
	HDD TOSHIBA 2.5" 5400RPM 160GB MK1655GSX LIBRA SATA LF F/W: FG011J	KH.16004.006
	HDD HGST 2.5" 5400RPM 160GB HTS545016B9A300 PANTHER B SATA LF F/W:C60F	KH.16007.024
	HDD WD 2.5" 5400RPM 160GB WD1600BEVT-22ZCT0 ML160 SATA LF F/W:11.01A11	KH.16008.022
	HDD SEAGATE 2.5" 5400RPM 250GB ST9250315AS WYATT SATA LF F/W:0001SDM1	KH.25001.016
	HDD TOSHIBA 2.5" 5400RPM 250GB MK2555GSX LIBRA SATA LF F/W:FG001J	KH.25004.003
	HDD HGST 2.5" 5400RPM 250GB HTS545025B9A300 PANTHER B SATA LF F/W:C60F	KH.25007.015
	HDD WD 2.5" 5400RPM 250GB WD2500BEVT-22ZCT0 ML160 SATA LF F/W:11.01A11	KH.25008.021
	HDD SEAGATE 2.5" 5400RPM 320GB ST9320320AS CROCKETT SATA LF F/W:0303	KH.32001.008
	HDD HGST 2.5" 5400RPM 320GB HTS545032B9A300 PANTHER B SATA LF F/W: C60F	KH.32004.002
	HDD HGST 2.5" 5400RPM 320GB HTS545032B9A300 PANTHER B SATA LF F/W: C60F	KH.32007.007
	HDD WD 2.5" 5400RPM 320GB WD3200BEVT-22ZCT0 ML160 SATA LF F/W:11.01A11	KH.32008.013
	HDD SEAGATE 2.5" 5400RPM 500GB ST9500325AS WYATT SATA LF F/W:0001SDM1	KH.50001.011
	HDD TOSHIBA 2.5" 5400RPM 500GB MK5055GSX LIBRA SATA LF F/W:FG001J	KH.50004.001
	HDD HGST 2.5" 5400RPM 500GB HTS545050B9A300 PANTHER B SATA LF F/W:C60F	KH.50007.009
	HDD WD 2.5" 5400RPM 500GB WD5000BEVT-22ZAT0 ML250 SATA LF F/W:01.01A01	KH.50008.013

Category	Part Name and Description	Gateway Part No.
	FLASH DISK INTEL SSD NAND 80GB SSDSA2MH080G1 LF Z-HEIGHT 9.5MM	KF.0800N.005
	FLASH DISK SAMSUNG SSD NAND 32GB MMCRE32GSMPP-MVA LF	KF.0320B.001

HEATSINK

	THERMAL MODULE WITH FAN	60.WEK0N.006
-----------------------------------------------------------------------------------	-------------------------	--------------


KEYBOARD



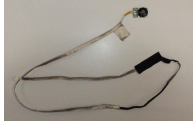
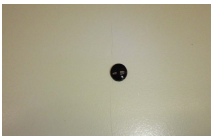
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black US International	KB.1140G.083
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black US w/ Canadian French	KB.1140G.085
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Turkish	KB.1140G.081
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Swiss/G	KB.1140G.079
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Sweden	KB.1140G.078
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black SLO/CRO	KB.1140G.076
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Norwegian	KB.1140G.073
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Hungarian	KB.1140G.069
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black FR/Arabic	KB.1140G.065
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Chinese	KB.1140G.063
Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Brazilian Portuguese	KB.1140G.061	

CHAPTER 6: FRU (Field Replaceable Unit) List


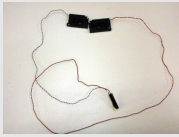
Category	Part Name and Description	Gateway Part No.
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black US International w/ Hebrew	KB.I140G.084
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black UK	KB.I140G.082
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Thailand	KB.I140G.080
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Spanish	KB.I140G.077
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Russian	KB.I140G.075
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Portuguese	KB.I140G.074
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Nordic	KB.I140G.072
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Japanese	KB.I140G.071
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Italian	KB.I140G.070
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Greek	KB.I140G.068
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black German	KB.I140G.067
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black French	KB.I140G.066
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Danish	KB.I140G.064
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black CZ/SK	KB.I140G.062
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Belgium	KB.I140G.060
	Keyboard GATEWAY GP-4T Black SJV40 Internal 14 Standard 86KS Black Arabic	KB.I140G.059

LCM

	LED LCD AUO 13.3" WXGA GLARE B133XW01 V2 LF 220NIT 8MS 500:1	LK.13305.002
	LED LCD LPL 13.3" WXGA GLARE LP133WH2-TLA3 LF 220NIT 16MS 500:1	LK.13308.002

Category	Part Name and Description	Gateway Part No.
MAIN BOARD		
	Mainboard SJM31_MS EC58/34_EBBFS LF SU9400 GS45 + ICH9M UMA	MB.WEK0B.001
	Mainboard SJM31_MS EC58/34_ENBFS LF SU3500 GS45 + ICH9M UMA	MB.WEK0B.002
MEMORY		
	MEMORY MICRON SO-DIMM DDRIII 1066 1 GB MT8JSF12864HY-1G1D1 LF 64*16 0.07UM	KN.1GB04.003
	MEMORY ELPIDA SO-DIMM DDRIII 1066 1 GB EBJ11UE6BAU0-AE-E LF 64*16 0.07UM	KN.1GB09.009
	MEMORY SAMSUNG SO-DIMM DDRIII 1066 1 GB M471B2874DZ1-CF8 LF 64*16 0.065UM	KN.1GB0B.019
	MEMORY SAMSUNG SO-DIMM DDRIII 1066 1 GB M471B2873EH1-CF8 LF 64*16 0.055UM	KN.1GB0B.028
	MEMORY HYNIX SO-DIMM DDRIII 1066 1 GB HMT112S6AFP6C-G7N0 LF 64*16 0.065UM	KN.1GB0G.019
	MEMORY MICRON SO-DIMM DDRIII 1066 2 GB MT16JSF25664HY-1G1D1 LF 128*8 0.07UM	KN.2GB04.004
	MEMORY ELPIDA SO-DIMM DDRIII 1066 2 GB EBJ21UE8BAU0-AE-E LF 128*8 0.07UM	KN.2GB09.002
	MEMORY SAMSUNG SO-DIMM DDRIII 1066 2 GB M471B5673DZ1-CF8 LF 128*8 0.065UM	KN.2GB0B.005
	MEMORY SAMSUNG SO-DIMM DDRIII 1066 2 GB M471B5673EH1-CF8 LF 128*8 0.055UM	KN.2GB0B.012
	MEMORY HYNIX SO-DIMM DDRIII 1066 2 GB HMT125S6AFP8C-G7N0 LF 128*8 0.065UM	KN.2GB0G.009
MICROPHONE		
	MICROPHONE	23.WEK0N.001
MISCELLANEOUS		
	LCD BUMPER	47.WEK0N.001

CHAPTER 6: FRU (Field Replaceable Unit) List

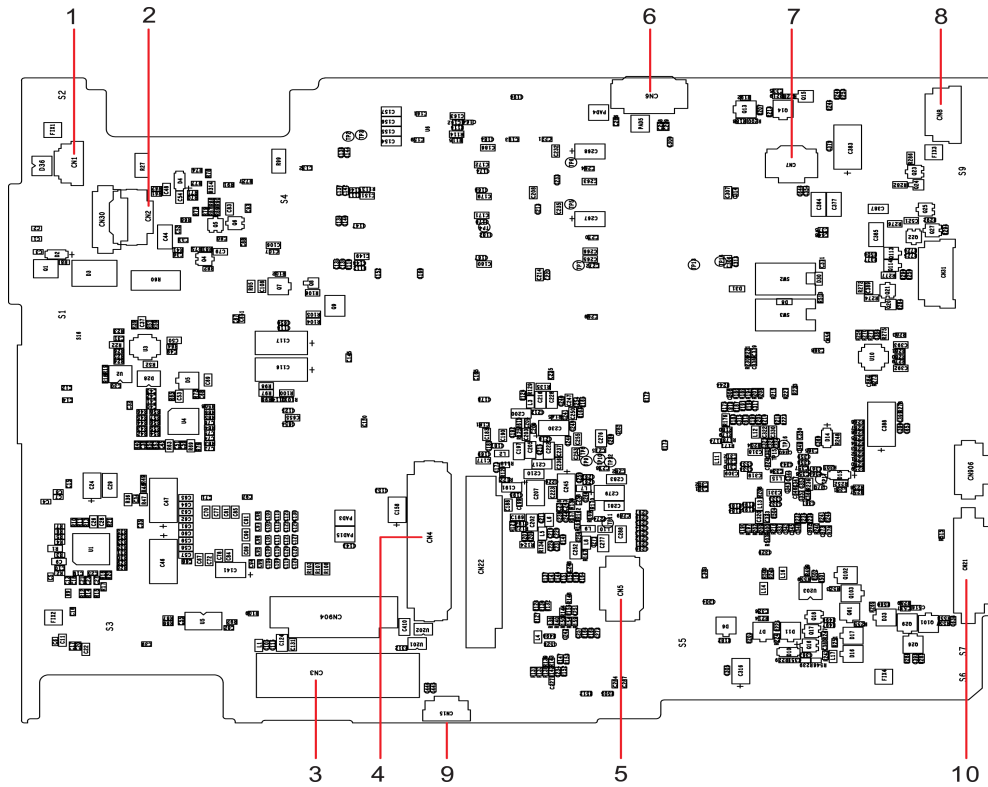
Category	Part Name and Description	Gateway Part No.
	AL FOIL	47.WEK0N.002
SCREW		
	SCREW M2.5*4.5 NI PATCH	86.WEK0N.001
	SCREW M2.0*3 NI PATCH	86.WEK0N.002
	SCREW-I30035M HARDEN	86.PCR0N.003
	SCREW M2.0 5.0MM CROSS BNI PATCH	86.PCR0N.004
	SCREW M2*3 PATCH	86.PCR0N.005
SPEAKER		
	SPEAKER	23.WEK0N.002

CHAPTER 5

Connector Locations

- [Top View](#)
- [Bottom View](#)

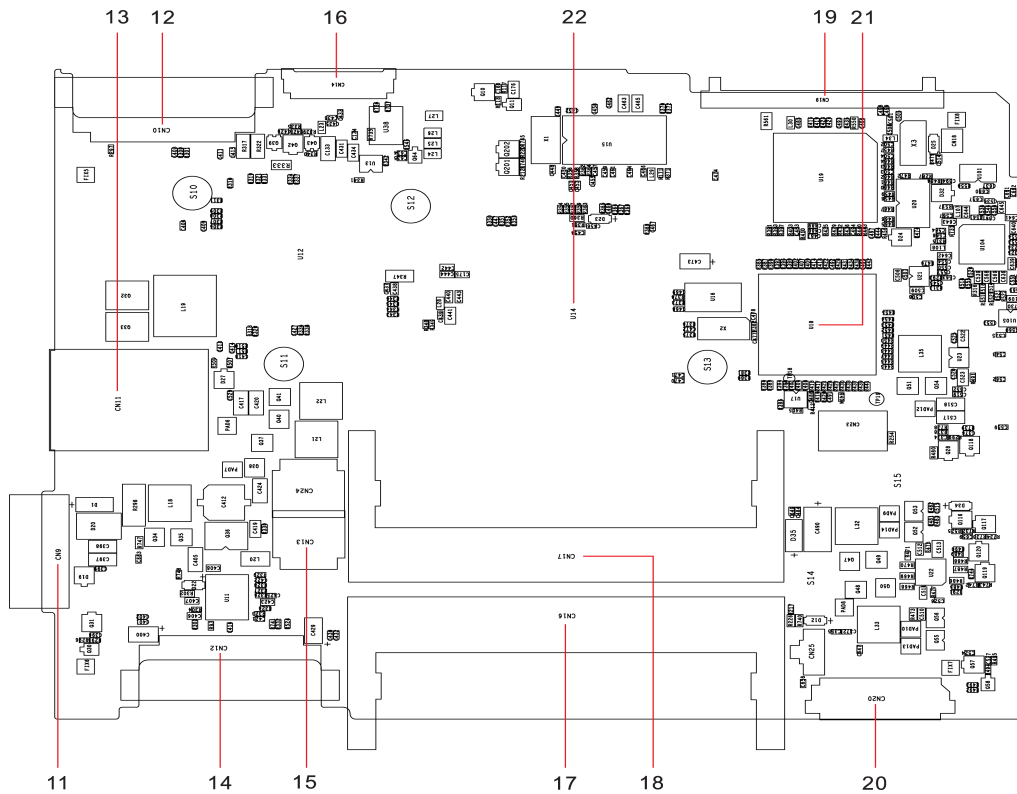
Top View



Gateway EC58 M/B layout and connector location Top view

No.	Name	Description
1	CN1	CCD cable CNTR
2	CN2	MMB cable CNTR
3	CN3	LVDS cable CNTR
4	CN4	Keyboard CNTR
5	CN5	Touch Pad FFC CNTR
6	CN6	SSD cable CNTR
7	CN7	Card reader CNTR
8	CN8	BT cable CNTR
9	CN15	Fan cable CNTR
10	CN21	Audio board CNTR

Bottom View



Gateway EC58 M/B layout and connector location Bottom view

No.	Name	Description
11	CN9	Battery CNTR
12	CN10	PCI-E socket
13	CN11	SIM card socket
14	CN12	PCI-E socket
15	CN13	Power cable CNTR
16	CN14	LVDS cable CNTR
17	CN16	DIMM socket
18	CN17	DIMM socket
19	CN19	HDD socket
20	CN20	USB board CNTR
21	U18	South Bridge
22	U14	North Bridge

CHAPTER 5: Connector Locations

APPENDIX A

Model Definition and Configuration

APPENDIX A: Model Definition and Configuration

Model	ENBFS-354G50n ENBFS-354G32n ENBFS-354G32n
RO	EMEA
Country	Spain
Gateway Part No.	LX.BAQ0X.001 LX.BAN0X.002 LX.BAN0X.001
Description	ENBFS-354G50n VHP32BTE51 M92LP512Ckk_V38 2*2G/500_L/BT/6L2.8/5R/CB_n2_1.0D_HG_ES54 BUTTERFLY_S-FC-160SP ENBFS-354G32n VHP32BTE51 UMACKk8 2*2G/320/BT/6L2.8/5R/CB_n2_1.0D_HG_ES54 BUTTERFLY_S-EV-151SP ENBFS-354G32n VHP32BTE51 UMACKk8 2*2G/320/BT/6L2.8/5R/CB_n2_1.0D_HG_ES54 BUTTERFLY_S-EV-150SP
CPU	C2SSU3500B
LCD	NLED13.3WXGAGS
SO-DIMM 1	SO2 GBIII10
SO-DIMM 2	SO2 GBIII10
HDD 1 (GB)	N500 GB5.4KS N320 GB5.4KS N320 GB5.4KS
Wireless LAN	SP1 x 2HMW
Bluetooth	BT 2.0

APPENDIX C

Online Support Information

APPENDIX C: Online Support Information

This section describes online technical support services available to help you repair your Gateway notebook.

If you are a distributor, dealer, ASP, or TPM, please refer your technical queries to your local Gateway branch office. Gateway branch offices and Regional Business Units may access our website. However some information sources will require a user id and password. These can be obtained directly from Gateway CSD Taiwan.

Gateway's website offers you convenient and valuable support resources whenever you need them. In the Technical Information section you can download information on all of Gateway's Notebook, Desktop and Server models including:

- Service guides for all models
- User's manuals
- BIOS updates
- Software utilities
- Spare parts lists
- TABs (Technical Announcement Bulletin)

For these purposes, we have included an Acrobat File to facilitate the problem-free downloading of our technical material. Also contained on this website are:

- Detailed information on Gateway's International Traveller's Warranty (ITW)
- Returned material authorization procedures
- An overview of all the support services we offer, accompanied by a list of telephone, fax and email contacts for all your technical queries.

We are always looking for ways to optimize and improve our services, so if you have any suggestions or comments, please do not hesitate to communicate these to us.

Index

B

- battery
 - locating 19
- BIOS Utility lxxx
 - boot lxxxix
 - exit xc
 - flash utility xci
 - navigating lxxxi
 - security lxxxv
- Board Layout
 - bottom view 15
 - top view 14

C

- cable lock 18
- connections
 - digital camera 17, 18
 - HDMI (TV) out 17
 - keyboard 17, 18
 - mouse 17, 18
 - printer 17, 18
 - scanner 17, 18
 - USB 17, 18

D

- digital camera
 - USB port 17, 18
- DIMM module 3
- disassembly flowchart vii

E

- error messages xxviii
- external CD-ROM drive check xxv

F

- features 3
- flash utility xci
- FRU list 1

H

- hard disk drive module 24
- HDMI (TV) out jack 17

I

- intermittent problems xli

J

- jumper and connector locations
 - bottom view lxv
 - top view lxiv

K

- keyboard
 - USB port 17, 18
- keyboard or auxiliary input
 - device check xxv

L

- LCD panel 22

M

- memory check xxvi
- microphone
 - built-in 22
- Model definition lxvii
- mouse
 - USB port 17, 18

O

- Online support information lxix

P

- PC card xxxviii
- ports
 - connections 17
- POST (Power-on self-test)
 - codes xxviii
- power button 21
- power system check xxvi
 - battery pack xxvii
 - power adapter xxvi
- printer
 - USB port 17, 18

S

- scanner
 - USB port 17, 18
- system
 - block diagram 13
 - check procedures xxiv

T

- television
 - HDMI out jack 17
- top lxiv
- touchpad
 - check xxvii
 - locating 21
- troubleshooting xxiii
- TV out (HDMI) jack 17

U

- undetermined problems xli
- USB port 17, 18
- utility
 - BIOS lxxx

V

- video
 - HDMI out jack 17

W

- webcam 22
- Windows Vista environment
 - test lxxiv
- wireless LAN 24

Index

APPENDIX B

Test Compatible Components

- [Introduction](#)
- [Microsoft® Windows® Vista Environment Test](#)

Introduction

This notebook's compatibility is tested and verified by Gateway's internal testing department. All of its system functions are tested under Windows® XP Home, Windows® XP Pro and Windows® Vista environment.

Refer to the following lists for components, adapter cards, and peripherals which have passed these tests. Regarding configuration, combination and test procedures, please refer to the Gateway EC58 series Compatibility Test Report released by the Gateway Mobile System Testing Department.

Microsoft® Windows® Vista Environment Test

Category	Model
	NB Chipset Intel CS G545NB A1 MM#900398 M10_Cantiga SFF FCBGA 1363P INTEL SB Chipset Intel CS AM82801IUX MM#898134 (ICH9M-SFFE) UMA ATI M92-S2-LP 512M-DDR3 64*16*4 Realtek Audio Codec ALC269X-GR Realtek RTS5159-GR Atheros AR8131 RTL8111CA-GR (Gateway only)
CPU	CPU Intel Core2Dual SU9400 BGA 1.4G 3M 800 10W R-0 ULV CPU Intel Core2Dual SU9600 BGA 1.6G 3M 800 ULV R-0 CPU Intel Core2 SU3500 BGA 1.3G 800 ULV R-0 CPU Intel Core2 SU3300 BGA 1.2G 800 ULV R-0 CPU Intel Pentium Single-Core SU2700 BGA 1.3G 2M 800 10W ULV
Panel	LED LCD AUO 13.3" WXGA Glare B133XW01 V2 LF 220nit 8ms 500:1 LED LCD LPL 13.3" WXGA Glare LP133WH2-TLA1 LF 220nit 16ms 500:1
Adapter	Adapter DELTA 65W 19V 1.7 x 5.5 x 11 Yellow ADP-65JH DB A, LV5 LED LF Adapter LITE-ON 65W 19V 1.7 x 5.5 x 11 Yellow PA-1650-22AC LV5 LED LF Adapter HIPRO 65W 19V 1.7 x 5.5 x 11 Yellow HP-A0652R3B 1LF, LV5 LED LF

Category	Model	
Battery	Battery SANYO AS-2009D Li-Ion 3S2P SANYO 6 cell 5200mAh Main COMMON ID:AS09D34	
	Battery SANYO AS-2009D Li-Ion 3S2P SANYO 6 cell 5600mAh Main COMMON ID:AS09D36	
	Battery SIMPLO AS-2009D Li-Ion 3S2P SAMSUNG 6 cell 5600mAh Main COMMON ID : AS09D70	
	Battery PANASONIC Li-Ion 3S2P PANASONIC 6 cell 5800mAh Main COMMON ID:AS09D56	
	Battery SANYO AS-2009D Li-Ion 3S2P SANYO 6 cell 4400mAh Main COMMON ID: AS09D31	
	Battery SONY AS-2009D Li-Ion 3S2P SONY 6 cell 4400mAh Main COMMON ID : AS09D41	
	Battery PANASONIC AS-2009D Li-Ion 3S2P PANASONIC 6 cell 4400mAh Main COMMON ID: AS09D51	
	Battery SIMPLO AS-2009D Li-Ion 3S2P PANASONIC 6 cell 4400mAh Main COMMON 2.2CG , ID: AS09D71	
	Battery SIMPLO AS-2009D Li-Ion 3S2P LGC 6 cell 4400mAh Main COMMON 2.2S3 , ID: AS09D73	
	Battery SIMPLO AS-2009D Li-Ion 3S2P SAMSUNG 6 cell 4400mAh Main COMMON 2.2F , ID: AS09D75	
	HDD	HDD SEAGATE 2.5" 5400rpm 160 GB ST9160310AS Crockett SATA LF FW:0303
		HDD TOSHIBA 2.5" 5400rpm 160 GB MK1655GSX Libra SATA LF FW: FG011J
		HDD HGST 2.5" 5400rpm 160 GB HTS545016B9A300 Panther B SATA LF FW:C50K
HDD WD 2.5" 5400rpm 160 GB WD1600BEVT-22ZCT0 ML160 SATA LF FW:11.01A11		
HDD SEAGATE 2.5" 5400rpm 250 GB ST9250315AS Wyatt SATA LF FW:0001SDM1		
HDD TOSHIBA 2.5" 5400rpm 250 GB MK2555GSX Libra SATA LF FW:FG000J		
HDD HGST 2.5" 5400rpm 250 GB HTS545025B9A300 Panther B SATA LF FW:C50K		
HDD WD 2.5" 5400rpm 250 GB WD2500BEVT-22ZCT0 ML160 SATA LF FW:11.01A11		
HDD SEAGATE 2.5" 5400rpm 320 GB ST9320320AS Crockett SATA LF FW:0303		
HDD TOSHIBA 2.5" 5400rpm 320 GB MK3255GSX Libra SATA LF		
HDD HGST 2.5" 5400rpm 320 GB HTS545032B9A300 Panther B SATA LF		
HDD WD 2.5" 5400rpm 320 GB WD3200BEVT-22ZCT0 ML160 SATA LF FW:11.01A11		
HDD SEAGATE 2.5" 5400rpm 500 GB ST9500325AS Wyatt SATA LF FW:0001SDM1		
HDD TOSHIBA 2.5" 5400rpm 500 GB MK5055GSX Libra SATA LF		
HDD HGST 2.5" 5400rpm 500 GB HTS545050B9A300 Panther B SATA LF		
HDD WD 2.5" 5400rpm 500 GB WD5000BEVT-22ZAT0 ML250 SATA LF FW:01.01A01		

APPENDIX B: Test Compatible Components

Category	Model
Memory	Memory MICRON SO-DIMM DDRIII 1066 1 GB MT8JSF12864HY-1G1D1 LF 64*16 0.07um Memory ELPIDA SO-DIMM DDRIII 1066 1 GB EBJ11UE6BAU0-AE-E LF 64*16 0.07um Memory SAMSUNG SO-DIMM DDRIII 1066 1 GB M471B2873EH1-CF8 LF 64*16 0.055um Memory HYNIX SO-DIMM DDRIII 1066 1 GB HMT112S6AFP6C-G7N0 LF 64*16 0.065um Memory MICRON SO-DIMM DDRIII 1066 2 GB MT16JSF25664HY-1G1D1 LF 128*8 0.07um Memory ELPIDA SO-DIMM DDRIII 1066 2 GB EBJ21UE8BAU0-AE-E LF 128*8 0.07um Memory SAMSUNG SO-DIMM DDRIII 1066 2 GB M471B5673EH1-CF8 LF 128*8 0.055um Memory HYNIX SO-DIMM DDRIII 1066 2 GB HMT125S6AFP8C-G7N0 LF 128*8 0.065um
WLAN	Lan Intel WLAN 533AN_HMWG Shirley Peak 5300 MM#895401 Lan Intel WLAN 512AN_HMWG Shirley Peak 5100 MM#895373 Foxconn Wireless LAN Atheros HB93 1x2 BGN (HM)
3G Module	Option 3G GTM382E Qualcomm GOBI2000 EM770
Keyboard	Keyboard Gateway GP001 (White)
Camera	Suyin 1.0Mega NB Module Model No.CN1014-S36D-OV02
SSD	HFS032G25MNM UM410
Touchpad	TM-00450-008 ALPS KG8DD0007
Bluetooth	Foxconn Bluetooth T60H928.11FOX_BRM_2.0 Foxconn Bluetooth T60H928.31 FOX_BRM_2.1
Modem	External USB Lite+LSI modem
Antenna	WLAN/3G COMBO anttenu WLAN anttenu

MAN GATEWAY SVC GDE R1 09



8513195

TEMP
UPC

CHAPTER 2

System Utilities

- BIOS Setup Utility
- BIOS Flash Utility

BIOS Setup Utility

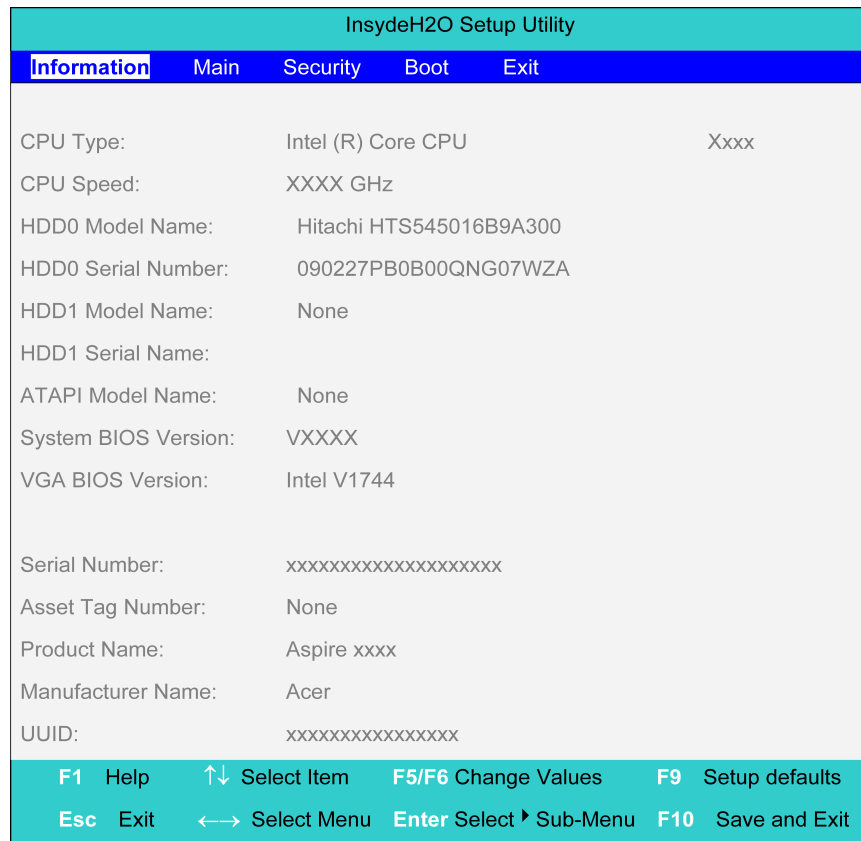
The BIOS Setup Utility is a hardware configuration program built into your notebook's BIOS (Basic Input/Output System).

Your computer is already properly configured and optimized, and you do not need to run this utility. However, if you encounter configuration problems, you may need to run Setup. Please also refer to Chapter 4 Troubleshooting when problem arises.

To activate the BIOS Setup Utility, press **m** during POST (when "Press <F2> to enter Setup" message is prompted on the bottom of screen).

Press **m** to enter setup. The default parameter of **F12** Boot Menu is set to "disabled". If you want to change boot device without entering BOIS Setup Utility, please set the parameter to "enabled".

Press <F12> during POST to enter multi-boot menu. In this menu, user can change boot device without entering BOIS Setup Utility.



Invoking BIOS Setup Utility

The setup function can only be invoked by pressing **F2** when “Press <F2> to enter Setup” message is prompted on the bottom of screen during POST.

The setup uses a menu driven interface to allow the user to configure their system. The features are divided into 5 parts as follows:

- **Information:** Display the system informations.
- **Main:** Allows the user to specify standard IBM PC AT system parameters.
- **Security:** Provides security settings of the system.
- **Boot:** Allows the user to specify the boot options.
- **Exit:** Allows the user to save CMOS setting and exit Setup.



Important

You can change the value of a parameter if it is enclosed in square brackets. Navigation keys for a particular menu are shown on the bottom of the screen. Help for parameters are found in the Item Specific Help part of the screen. Read this information carefully when making changes to parameter values. **Please note that system information is subject to different models.**

Information

The Information screen displays a summary of your computer hardware information.

InsydeH2O Setup Utility				
Information	Main	Security	Boot	Exit
CPU Type:	Intel (R) Core CPU			Xxxx
CPU Speed:	XXXX GHz			
HDD0 Model Name:	Hitachi HTS545016B9A300			
HDD0 Serial Number:	090227PB0B00QNG07WZA			
HDD1 Model Name:	None			
HDD1 Serial Name:				
ATAPI Model Name:	None			
System BIOS Version:	VXXXX			
VGA BIOS Version:	Intel V1744			
Serial Number:	xxxxxxxxxxxxxxxxxxxx			
Asset Tag Number:	None			
Product Name:	Aspire xxxx			
Manufacturer Name:	Acer			
UUID:	xxxxxxxxxxxxxxxxxxxx			
F1 Help	↑↓ Select Item	F5/F6 Change Values	F9 Setup defaults	
Esc Exit	←→ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit	



Important

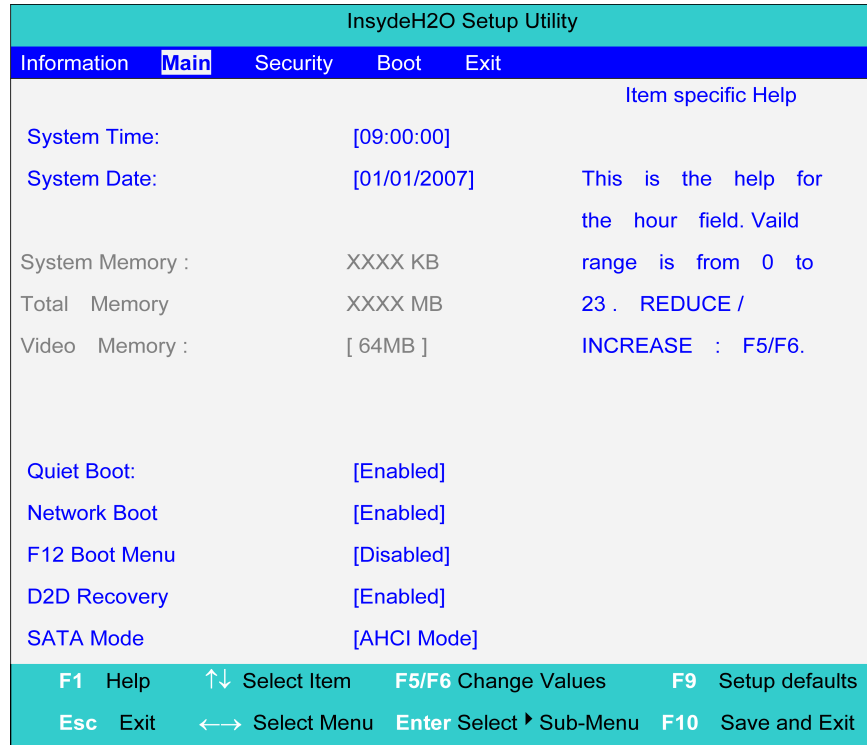
The system information is subject to different models.

CHAPTER 2: System Utilities

Parameter	Description
CPU Type	This field shows the CPU type of the system.
CPU Speed	This field shows the CPU speed of the system.
HDD0 Model Name	This field shows the model name of HDD installed on primary master.
HDD0 Serial Number	This field displays the serial number of HDD installed on primary master.
HDD1 Model Name	This field displays the model name of devices installed on secondary master. The hard disk drive or optical drive model name is automatically detected by the system.
HDD1 Serial Number	The field shows the serial number of devices installed on secondary master.
System BIOS Version	Displays system BIOS version.
VGA BIOS Version	This field displays the VGA firmware version of the system.
Serial Number	This field displays the serial number of the unit.
Asset Tag Number	This field displays the asset tag number of the system.
Product Name	This field shows product name of the system.
Manufacture Name	This field displays the manufacturer of this system.
UUID Number	This will be visible only when an internal LAN device is presenting. UUID=32bytes

Main

The Main screen displays a summary of your computer hardware information, and also includes basic setup parameter. It allows the user to specify standard IBM PC AT system parameters.



Important

The system information is subject to different models.

The table below describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Parameter	Description	Format/Option
System Time	Sets the system time. The hours are displayed with 24-hour format.	Format: HH:MM:SS (hour:minute:second) System Time
System Date	Sets the system date.	Format: MM/DD/YYYY (month/day/year) System Date
System Memory	This field reports the memory size of the system.	
Total Memory	This field reports the memory size of total memory in the system.	
Video Memory	Shows the video memory size.	

CHAPTER 2: System Utilities

Parameter	Description	Format/Option
Quiet Boot	Determines if Customer Logo will be displayed or not; shows Summary Screen is disabled or enabled. Enabled: Customer Logo is displayed, and Summary Screen is disabled. Disabled: Customer Logo is not displayed, and Summary Screen is enable.	Option: Enabled or Disabled
Network Boot	Enables, disables the system boot from LAN (remote server).	Option: Enabled or Disabled
F12 Boot Menu	Enables, disables Boot Menu during POST.	Option: Disabled or Enabled
D2D Recovery	Enables, disables D2D Recovery function. The function allows the user to create a hidden partition on hard disc drive to store operation system and restore the system to factory defaults.	Option: Enabled or Disabled
SATA Mode	Choose which mode of HDD mode. Please be careful for changing this setting because it might cause system fail to boot.	Option: AHCI Mode or IDE Mode

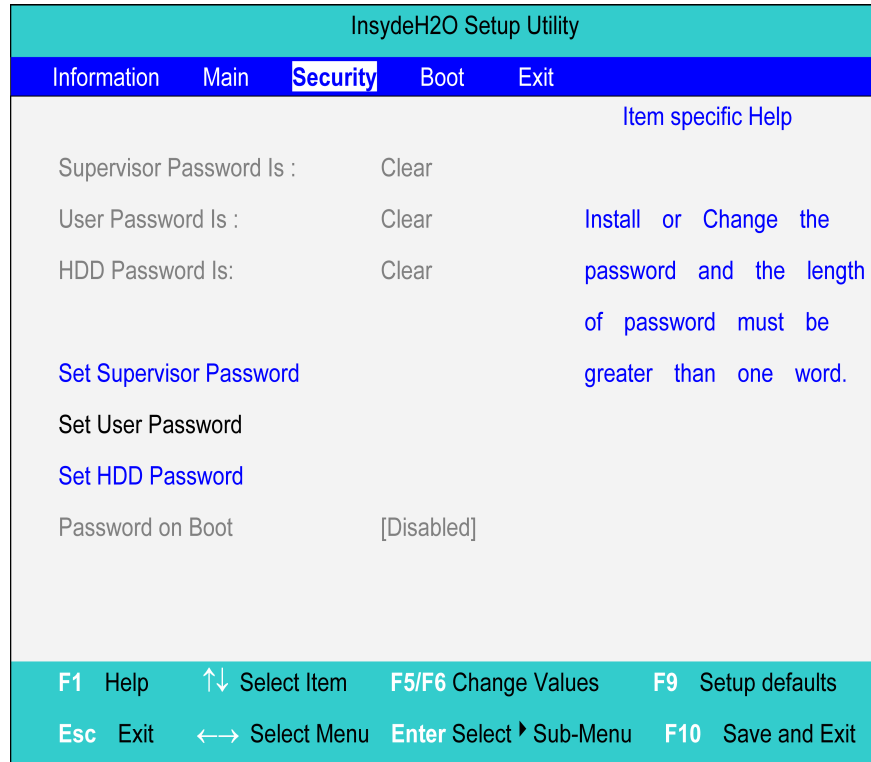


Important

The sub-items under each device will not be shown if the device control is set to disable or auto. This is because the user is not allowed to control the settings in these cases.

Security

The Security screen contains parameters that help safeguard and protect your computer from unauthorized use.



The table below describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Parameter	Description	Option
Supervisor Password Is	Shows the setting of the supervisor password.	Clear or Set
User Password Is	Shows the setting of the user password.	Clear or Set
HDD Password Is	Shows the settings of HDD password.	Clear or Set
Set Supervisor Password	Press Enter to set the supervisor password. When set, this password protects the BIOS Setup Utility from unauthorized access. The user cannot enter the Setup menu and change the value of parameters.	

Parameter	Description	Option
Set User Password	Press Enter to set the user password. When a user password is set, this password protects the BIOS Setup Utility from unauthorized access. The user can enter the Setup menu only and does not have right to change the value of parameters.	
Set HDD Password	Press Enter to set the HDD password. When HDD password is set, this password protects the HDD. Other users cannot steal information.	
Password on Boot	Defines whether a password is required or not while the events defined in this group happened. The following sub-options all require the supervisor password for changes and should be grayed out if the user password was used to enter setup.	Disabled or Enabled



Important

When you are prompted to enter a password, you have three tries before the system halts. Don't forget your password. If you forget your password, you may have to return your notebook to your dealer to reset it.

Setting a Password

► Follow these steps as you set the user or the supervisor password:

- 1 Use the **w** and **y** keys to highlight the Set Supervisor Password parameter and press the **e** key. The Set Supervisor Password box appears:

Set SupervisorPassword

Enter New Password []

Confirm New Password []

- 2 Type a password in the Enter New Password field. The password length cannot exceed 8 alphanumeric characters (**A-Z**, **a-z**, **0-9**, not case sensitive). Retype the password in the Confirm New Password field.



Important

Be very careful when typing your password because the characters do not appear on the screen.

- 3 Press **e**.
After setting the password, the computer sets the User Password parameter to "Set".

- 4 If desired, you can opt to enable the Password on boot parameter.
- 5 When you are done, press **u** to save the changes and exit the BIOS Setup Utility.

Removing a Password

► Follow these steps:

- 1 Use the **w** and **y** keys to highlight the Set Supervisor Password parameter and press the **e** key. The Set Password box appears:

Set Supervisor Password	
Enter current password	[]
Enter New Password	[]
Confirm New Password	[]

- 2 Type the current password in the Enter Current Password field and press **e**.
- 3 Press **e** twice **without** typing anything in the Enter New Password and Confirm New Password fields. The computer then sets the Supervisor Password parameter to **"Clear"**.
- 4 When you have changed the settings, press **u** to save the changes and exit the BIOS Setup Utility.

Changing a Password

► Follow these steps:

- 1 Use the **w** and **y** keys to highlight the Set Supervisor Password parameter and press the **e** key. The Set Password box appears:

Set Supervisor Password	
Enter current password	[]
Enter New Password	[]
Confirm New Password	[]

- 2 Type the current password in the Enter Current Password field and press **e**.
- 3 Type a password in the Enter New Password field. Retype the password in the Confirm New Password field.
- 4 Press **e**. After seeing the password, the computer sets the User Password parameter to **"Set"**.
- 5 If desired, you can enable the Password on boot parameter.
- 6 When you are done, press **u** to save the changes and exit the BIOS Setup Utility.

CHAPTER 2: System Utilities

If the verification is OK, the screen will display as following:

Setup Notice
Changes have been saved.
[continue]

The password setting is complete after the user presses u.

If the current password entered does not match the actual current password, the screen will show you the Setup Warning.

Setup Warning
Invalid password
Re-enter Password
[continue]

If the new password and confirm new password strings do not match, the screen will display the following message.

Setup Warning
Password do not match
Re-enter Password

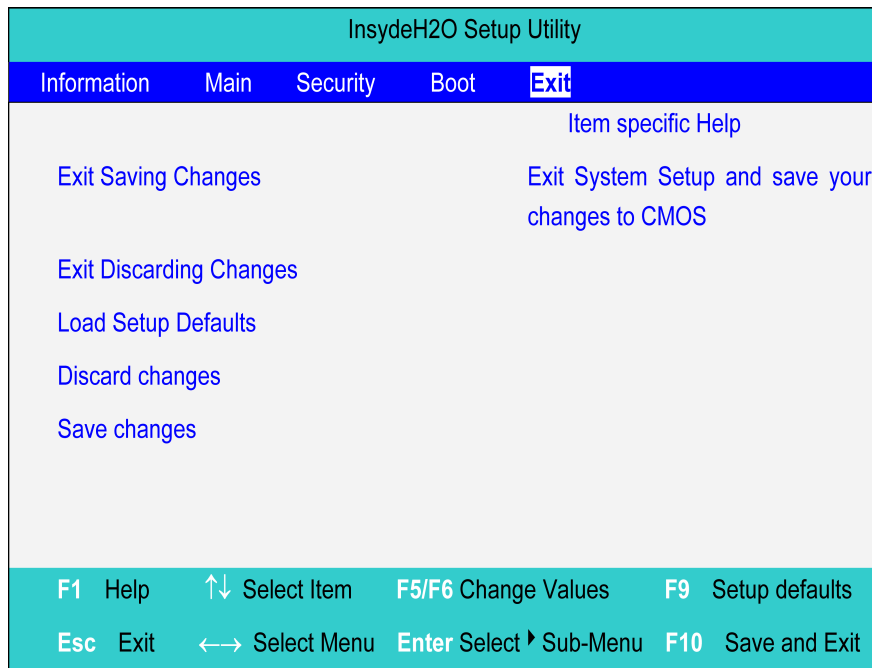
Boot

This menu allows the user to decide the order of boot devices to load the operating system. Bootable devices includes diskette drive in module bay, the onboard hard disk drive and the CD-ROM in module bay.

InsydeH2O Setup Utility				
Information	Main	Security	Boot	Exit
Boot priority order :		Item specific Help		
1: IDE0 : Hitachi HTS545016B3A345		Use <↑> or <↓> to select a device, then press <F6> to move it up the List, or <F5> to move it down the list. Press <Esc> to escape the menu		
2: IDE1 :				
3: IDE2 :				
4: Network Boot :				
5. USB HDD :				
6. USB FDD :				
F1 Help	↑↓ Select Item	F5/F6 Change Values	F9 Setup defaults	
Esc Exit	←→ Select Menu	Enter Select	▶ Sub-Menu	F10 Save and Exit

Exit

The Exit screen contains parameters that help safeguard and protect your computer from unauthorized use.



The table below describes the parameters in this screen.

Parameter	Description
Exit Saving Changes	Exit System Setup and save your changes
Exit Discarding Changes	Exit utility without saving setup data to CMOS.
Load Setup Default	Load default values for all SETUP item.
Discard Changes	Load previous values from CMOS for all SETUP items.
Save Changes	Save Setup Data to CMOS.

BIOS Flash Utility

The BIOS flash memory update is required for the following conditions:

- New versions of system programs.
- New features or options.
- Restore a BIOS when it becomes corrupted.

Use the Phlash utility to update the system BIOS flash ROM.



Important

If you do not have a crisis recovery diskette at hand, then you should create a Crisis Recovery Diskette before you use the Phlash utility. Do not install memory-related drivers (XMS, EMS, DPMI) when you use the Phlash.



Caution

Use the AC adapter power supply when you run the Phlash or Nkbcf utility. If the battery pack does not contain enough power to finish flashing the BIOS, the notebook may not boot because the BIOS was not completely loaded.

► **Follow the steps below to run the Phlash:**

- 1 Prepare a bootable diskette.
- 2 Copy the flash utilities to the bootable diskette.
- 3 Then boot the system from the bootable diskette. The flash utility has auto-execution function.

CHAPTER 2: System Utilities